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- ART. I.—1. *Lives and Doctrines of the Illustrious Philosophers.*
(Περὶ βίων καὶ δογμάτων τῶν ἐν φιλοσοφίᾳ
εὐδοκμησάντων.) DIOGENES LAERT.
2. *De Vita et Moribus Epicuri Commentarius. Libris octo constans.*
GASSENDI. Lipsiæ.
3. *De Natura Deorum. De Finibus. De Fato.* CICERO.
4. *De Rerum Natura.* LUCRETIVS.

IN all ages and countries it has been more or less a crime to think boldly, and those who have done so have paid the penalty in one form or other. All founders of sects or systems, philosophical or religious, have been persecuted. If they have not been imprisoned, banished, or put to death, they have at least been traduced and calumniated. Nor have they suffered this treatment only at the hands of the thoughtless multitude; jealousy and envy have not unfrequently arrayed against them the most learned men. Upon the other hand their own partisans or disciples have alike exaggerated their talents and their virtues, so that their true characters can be ascertained by posterity only by communing with the enlightened and dispassionate few who are superior to the prejudices of clique, party, or sect.

Although this is a humiliating commentary on human intelligence, it does not entirely exclude justice. We find, on investigation, that, in proportion as the innovator has more or less error or truth in his system, the persecution or obloquy to which he is subjected is more or less enduring, or otherwise. In general, those who proclaim the truth may

console themselves with the reflection that time will vindicate them to the world, though such is the brevity of human life, it is not likely they will live to enjoy their vindication; but no amount of genius or learning, no length of time, can insure a similar vindication for the champion of error and wrong. All the latter can expect is, that the time will come when he will cease to be accused of more than he has been guilty of; when his virtues, if he has any, will be recognised and placed in the balance against his faults. But it may take ages to render him even this justice.

This is but too true of Epicurus, the subject of our present article. No philosopher of ancient or modern times has been more grossly misrepresented; even at the present day, after the lapse of more than two thousand years, his name is almost synonymous, throughout the world, with vice;* whereas the few unprejudiced, impartial men who have investigated his character in the interest of truth and justice are unanimous in giving him the credit of having lived a most abstemious and blameless life. But that he was an atheist is beyond dispute; and it is still more indisputable that a graver fault no one could be guilty of than to deny the Creator of the universe. He does not, however, forfeit by it the right of being fairly judged; in any case his life and character would be a legitimate subject of study; it would be the duty of the moralist as well as the friend of religion to examine the circumstances or agencies by which he was led into error, the same as it is the duty of the intelligent physician to examine the predisposing causes, and trace the development, even of the most loathsome diseases, in order that the knowledge so acquired might serve at least as a warning to others. Nor will it be denied that, under any circumstances, the founder of one of the most famous sects of philosophers that has ever existed, and the author of three hundred works, would have been an interesting subject of study to the enquiring mind.

According to the most reliable biographers, Epicurus was born in the year 337 B. C., a few years after the death of Plato. Like many other illustrious men, he was the son of poor and humble parents. Diogenes Laertius tells us that

* "Jamais, peut-être," says M. Mallet, "chef d'école ne se vit plus cruellement maltraité que ne le fut Epicure, par les écrivains ses contemporains, ou par ceux qui vinrent après lui. Cimon le syllographe l'appelle, 'le plus effronté et le plus misérable des hommes.'"—*Etudes philosophiques*, vol. ii, p. 120.

his father, Neocles, was a country schoolmaster,* with but slender pretensions to learning, and that his mother, Chærestrata, practised the arts of magic for a livelihood. The place of the philosopher's birth is disputed, some maintaining that he was a native of the Island of Samos, while others assert, and apparently with more reason, that he was born at Gargettus, within the territory of Athens. Be this as it may, his father was one of the two thousand colonists sent by the Athenian government to Samos in 352 B. C.† Whether Epicurus was born in that famous Island or not, it seems certain that it was there he was brought up. He was ten years of age when he first visited Athens; but he remained only a short time, probably only a few months, having quitted the capital immediately after the death of Alexander. If his father was not learned himself, he valued learning as superior to any inheritance, and so fully did he impress this idea on his son that we are told Epicurus was enthusiastically engaged in the study of philosophy at the age of fourteen years. Such was the young man's aversion to ignorance, which he regarded as a disgrace, that he begged to be excused from attending any of the great schools of Athens until he should have made such progress in his studies as would save him from the ridicule or contempt of the Athenian youth who had enjoyed better advantages than himself. This caused his father to exert himself more and more to secure for him the best instructions within his reach. We are told by Apollodorus that the good man travelled on foot through the Island for several days, until he met with the philosopher Amphilus, a Platonist.‡

His new master offered to teach Epicurus gratis after he had conversed with him for some time in the presence of some of his pupils, although the philosopher was by no means pleased with his doctrines. On being questioned as to the source whence he derived these, he frankly admitted that they were suggested to him by reading the writings of Democritus, a copy of which had fallen into his hands by accident, adding that the impressions which they gave him were strengthened by the perusal of Hesiod's description of chaos. We are told that the disciple of Plato was much pained to find his young pupil an atheist, but that he felt

* Lib. x., p. 14.

† Diog. Laert., ch. ii.

‡ Suid. See, also, Cicero, *Natura Deorum*, i., 26.

confident he would soon convince him that not only is the universe the work of an all-wise Being, but that the human soul is immortal. When asked why he was so confident of this, the philosopher's reply was, that Epicurus was an excellent reasoner, and that no one who could reason well could persist in maintaining that the universe was the result of chance.*

According to Demetrius, in Diogenes Laertius, when Epicurus had learned all that the best instructors in the Island of Samos could teach, he returned to Athens, and placed himself under the tuition of Xenocrates, who was a disciple of Aristotle, and regarded at this time as the best teacher in all Greece. It seems that he studied under Xenocrates two years; then he went to Mytilene, in the Island of Lesbos, where he opened a school. The people of Mytilene admired his learning and esteemed his character, but detested his doctrines; accordingly, he was obliged to close his school at the end of the year, and remove to Lampsacus, where he was well received—a fact sufficiently proved by his having remained there four years.† At the close of this period he returned again to Athens, and immediately founded his celebrated school, which was known throughout Greece and the Roman Empire for ages afterwards as the Epicurean. It was situated in the midst of a beautiful garden which the philosopher had purchased for a sum equal to about one thousand five hundred dollars—the chief part of what he had earned by his teaching at Lampsacus. He had scarcely opened his school when he was assailed on all sides, but chiefly by the Stoics, who were the Pharisees or Puritans of that age. The charges made against him became more and more serious and malignant in proportion as his pupils increased, especially when it was found that not only had his former pupils followed him from Mytilene and Lampsacus—coming to Athens from all parts of Asia Minor, and even from Egypt‡—but that some of the most eminent of the students of all the other great schools had also sought his instructions. From this forth until his death, which took place in the seventy-second year of his age, there was no species of moral depravity of which he was not persistently accused.

The public easily believed that one who was opposed to all religion must be a bad man; yet we are assured that no

* Gassendi, lib. 1., ch. 7.

† Suidas.

‡ Gassendi ex Plutarcho. See, also, Numenius apud Eusebius, l. xiv., c. 5.

other teacher or philosopher had half as many pupils. This is rendered the more remarkable by the fact that he admitted none but those possessed of a certain amount of intelligence; it may well be doubted whether the standard for admission at our best colleges is so high at the present day. Those not up to this standard had to return to their former teachers and learn more. A similar rule was maintained in regard to the public. All desiring to be present at any of the philosopher's lectures had to give some evidence of their ability to form an intelligent opinion of what they heard; and those who could not do so were rigorously excluded. If they forced their way, no lectures were delivered—no students were questioned until the intruders left; whereas, when educated persons entered, they had an opportunity of examining the Epicurean system of teaching in all its branches, no matter what other schools they belonged to. We may remark, in passing, that this is an Epicurean rule from which some modern professors might profit; for certain it is, that there are colleges in our country which are much more willing that the illiterate should be present at their recitations in Greek and Latin than those capable of forming a correct opinion of the character of those recitations. There are many other points of view in which the habits and tastes of Epicurus may be contrasted with those of modern educators, altogether apart from his peculiar system of philosophy. But suffice it to say here, that he had no ambition for the applause of the multitude.

Neither king, nor prince, nor president, could induce him to leave his garden to address the public on any subject whatever. When asked to do anything of the kind his answer was, that it was not to make a display of his knowledge he had devoted his life to it, but in order to communicate it to his pupils, so that it might contribute to their happiness and to his own. It was for the same purpose, not for fame, that he wrote his numerous books. Little as he cared for fame he cared less, if possible, for the calumnies of his enemies; for he only smiled at the grossest libels published against him. He was aware that those whom he addressed daily knew him too well to believe him guilty of any such excesses as those attributed to him; and his pupils and disciples were his world.

Nothing is clearer than that Epicurus was beloved by his school; perhaps no instructor was ever more beloved, not excepting even Pythagoras. But this his enemies ascribed

not to his superior learning, his eloquence, and the gentleness and amiability of his disposition, but to the laxity of his morals. The Stoics proclaimed that he was beloved by his pupils only because he allowed them the freest indulgence in the gratification of their passions; for that he was beloved for some cause was indisputable, since, as Diogenes Laertius tells us, he had so many pupils from all parts of the world that whole cities could not contain them.* But the experience of our own times proves that no teachers are more beloved by their students than clergymen, or those educational brotherhoods who are most strictly moral and pious.

It cannot be denied that his avowed tenets were of a character to render it at least plausible that he had no regard for virtue, and that he considered vice as a good rather than an evil. It was only those to whom he explained himself that knew it was far from his intention to do violence to nature so far as to encourage vice and licentiousness. This we will now proceed to show, for although of all the works of Epicurus none are now extant save a few philosophical letters, a selection of precepts preserved by Diogenes Laertius,† and some fragments of the treatise, *Περὶ φύσεως* (Concerning Nature, 39 books), found in the ruins of Herculaneum, there is no philosopher of antiquity whose doctrines are better known. In the time of Cicero, most of his works, if not the whole, were not only extant, but extensively read. The Roman orator himself speaks of them in several of his philosophical works. We shall see in due time that Cicero severely criticises the tenets of Epicurus, but does justice to the purity of his character as a man. A similar course is pursued by Plutarch, who was as much opposed to atheism as the most pious Christian, but who knew how to distinguish between errors of judgment and the general character of a philosopher.

The Epicurean philosophy is divided into three branches, known as the Canonical, the Physical, and the Ethical; but most critics regard the two former as merely introductory to the latter. It seems highly probable that such was the intention of the author. Be this as it may, the Ethics is by far the most important part of the philosophy. Before passing judgment on Epicurus, or his system, it is necessary to bear in mind that he defines philosophy as *the exercise of reason* with the view of securing a

* L. x., c. 11.

† Diog. x. 35 *et seq.*

happy life. But how is this to be done? Not by the free indulgence of the passions, as the enemies of the philosopher have represented; not by any excesses whatever, but by the acquisition of knowledge, and the dissipation of ignorance.

It will be admitted that even an atheist who makes these the fundamental principles of his system, and insists on their being fully acted upon, cannot do much mischief; for if he offers poison to his followers, he furnishes them a sufficient antidote at the same time. Accordingly, we are informed by most of his biographers, ancient as well as modern, that not one out of twenty of his innumerable pupils accepted from him the atheistic dogma, much as they loved and revered him. The great majority believed that, except in one or two particulars, all his principles were entirely consistent with the existence of a First Cause—a Superior Intelligence, who had not only created the universe, but continued to govern it. It was not, then, as an atheist that Epicurus was the most popular philosopher of his time, but rather in spite of his being an atheist; and still less was he popular as an encourager or prompter of vice; although the contrary in each case is the almost universal opinion entertained of him throughout the world, even to the present day. Now, as well as in the time of the Stoics, a man whose morals are lax, who indulges in sensual excesses without restraint, and who believes neither in religion nor in God, is by general consent called an Epicurean.

What is called the Canon may be regarded as the philosopher's system of logic. His Physics embraces the study of all nature; and he devotes to it the thirty-sixth book of the great work entitled *Περὶ φύσεως*, besides a series of letters, especially those which he addressed to Herodotus and Pythocles. All these the student had to study carefully before he was permitted to form any opinion of the philosopher's Ethics. When he finally took up the latter he was informed that it had a twofold object; to teach what ought to be done and what ought to be avoided. The whole system was embraced in two words—to *choose*, to *reject*. Thus the reason and the judgment are exercised at every step; the student must have a criterion as well as a rule to guide him. After he has learned to make proper use of all these means of investigating truth and dispelling ignorance, he is informed that there are three means of attaining to happiness, namely, *sensations*, *anticipations*, and *sentiments* or *passions*. Sensations are agreeable

or disagreeable, and hence it is that we derive from them, according to Epicurus, our sentiments or passions, which guide us in regard to what we should choose or reject.

But whence do we derive those sensations? In order to answer this question the philosopher has to adopt the hypothesis of Democritus, which teaches that perpetual emissions of subtle images are escaping from all bodies, and by their contact with our sensible organs produce sensation, *αἰσθησις*, accompanied with perception or sensible ideas, *ἐπαίσθημα*, and the understanding completes the logical process.

It need hardly be remarked that this is a very defective logical process, although it is but fair to admit that when it is fully elaborated, as it is by Diogenes Laertius, it seems plausible enough; but even as set forth by the most eloquent Epicureans it is nothing more than plausible. Nor is this strange; had it been otherwise, it would not have led any intelligent mind to believe that the universe is the result of chance. The manner in which this is proved would be logical enough were the premises admitted; but without such admission it is not proof, but the most absurd sophistry. This will be readily seen, in passing, from a brief analysis. Thus, according to Epicurus, the universe consists of two parts, matter and space, or *vacuum* in which matter exists and moves. Now, in this brief sentence, there is much of the secret of the success of Epicurus as a philosopher, showing, as it does, how intimately and attractively he combines truth with error; for the vacuum theory is the accepted one at the present day, having been demonstrated by the researches of Kepler and Newton, who proved the *plenum* theory of Descartes and so many other philosophers to be an impossibility.

Thus a scientific and philosophical truth, taught by Epicurus in his garden towards the close of the fourth century before our era, has been confirmed by the greatest astronomers and philosophers of modern times. There is no reason why this glory should be denied to Epicurus; the cause of truth is in no manner injured by the admission that, however short-sighted and impious the Pagan philosopher was in accounting for the origin of things, his scientific insight was much more piercing than that of Descartes, the most orthodox of Christian philosophers. But, unhappily, whenever Epicurus enunciates a great truth, he is sure to shroud it in error. This is but too apparent in almost every proposition we find in his Ethics. After

declaring the beautiful truth that matter must have space in which to move, he tells us that all matter of every kind and form is reducible into certain indivisible particles which he calls atoms. These atoms he declares to be eternal; but nothing else. According to him there is no such thing as spirit; even the principle of human life, whether we call it soul or mind, is matter, and as such dissolves and perishes.

But let us see how he proves this, and then ask whether there is any danger that it will unsettle the faith of the most weak-minded believer in the existence of an all-wise Creator. He tells us that whatever is animate or inanimate is produced by a fortuitous concourse of these eternal atoms. They have two motions—one perpendicular or straight downwards, the other oblique; and according as they meet while thus in motion, all bodies in the universe, from the sun in the firmament, to the smallest animalcule on earth, including man himself, are formed.

If a mountain differs from an antelope or a nightingale, it is on account of the different kinds of atoms that happened to meet when they came into existence. If maladies attack animals of any species, if a pestilence devastates whole nations, if an earthquake, volcanic eruption, or any other convulsion of nature occurs, all results from a fortuitous concourse of atoms. God has nothing to do with these phenomena, or with any other. Yet Epicurus sometimes speaks of the gods; but it is sufficiently evident that he does so only to avoid the odium which atheism has always inspired, even among Pagans, against men who were regarded as blameless in every other respect.

That Epicurus was a bold man—one who feared nothing—is abundantly proved by the character of his works. At the same time rashness would have violated one of his principal dogmas. One of his favourite precepts was, that we should always avoid wounding the susceptibilities of our neighbours as much as possible, and that even an important truth should not be violently urged on those who were unwilling to receive it. It is highly probable that it was in accordance with this precept he recognised the existence of the gods, and even urged that they ought to be worshipped. For any higher purpose he might as well not have done so, since he denies that they take any part in the government of the world, and that they are either pleased or offended at any thing that happens in it.

He regards them merely as superior beings who deserve reverence and adoration for that superiority, but not for any good they do or can do.

We shall see, presently, that he has been severely criticised for these inconsistencies by competent critics, who had an opportunity of examining his writings. In the mean time we will return for a moment to his Ethics. Now the reader is somewhat better prepared to form an intelligent opinion of the charges made against the philosopher's mode of life and that of his pupils, than when we alluded to that branch of our subject above. We think he will henceforward agree with us that if Epicurus was accused of all sorts of crimes against morality and the welfare of society, it by no means follows that he was guilty of those crimes.

We have already noticed the importance that he attached to pleasure. He tells us that man naturally loves it; and that it is as natural to him to hate pain. Accordingly, he maintains that it is not only allowable that we should seek pleasure and avoid pain, but that it becomes our duty to exert ourselves to the utmost to accomplish those ends, respectively. Nor does he confine himself to any particular kind of pleasure, or pain; he not only includes those of the mind as well as of the body, but ranks mental pleasures and pains much higher than bodily pleasures and pains. In order that there may be no doubt of his real views on this subject, he writes to several of his friends to guard against being misunderstood; and fortunately some of these letters are still extant, having been preserved in the works of Diogenes Laertius. "When we lay down as a principle," says Epicurus in his letter to Menecceus, "that happiness is the end of man, we by no means speak of the pleasures of luxury or of debauchery, as certain men who misunderstand our doctrine, or who interpret it erroneously, allege. Happiness, or the highest pleasure, as we understand it, consists in the health of the body and in the unalterable tranquillity of the soul."^o

The question is, whether the free indulgence of the passions would be consistent with the health of the body and the tranquillity of the mind? no moralist or physiologist would maintain that they are. No philosopher has more fully demonstrated than Epicurus himself that excess of any kind is sure to entail its own punishment sooner or later. It has

^o Diog. Laert. x.

been generally admitted in all ages that there is no safer guardian of virtue than *prudence*, and no one has held it in higher esteem than the very man who is almost universally regarded as its worst enemy. In order to prove this we need not go beyond the letter already quoted. "The principal of these advantages," he says, "is *prudence*, the greatest good. Thus the most precious of all things that appertains to philosophy is *prudence*, whence proceed all the virtues. *There can be no happy life without prudence, probity, justice; virtue is the condition of happiness.*"*

Nor did Epicurus merely preach this doctrine and practise another. All his biographers, ancient and modern, are wrong if his conduct through life was not in strict accordance with it. We have already alluded to his mode of life in his garden, surrounded by his pupils. On account of the misrepresentations constantly made against him by the Stoics, he had an inscription placed over his gate warning all who might desire to enter that they need expect no luxuries there; that the only fare provided was barley cakes and water.† Profiting by the experience of Socrates he refused to get married, in order that he might be able to devote himself to philosophy without interruption. Yet he was accused of having vomited twice a day in order that he might be able to gorge himself the more; and of keeping immodest women for the sensual gratification of himself and his pupils. True, it was only those at a distance who could be induced to believe such stories as these. Every intelligent Athenian, who knew him at all knew that no one lived a more frugal and virtuous life, and that no vicious students were permitted to remain in the garden. Two were expelled on this account; and it was one of these, Timocrates, who chiefly circulated those calumnies against him, partly to avenge himself, and partly to gratify the Stoics. In short, such was his character for chastity as well as frugality in Athens, that one of his worst enemies, Chrysippus, made it a cause of reproach to him by representing that he had no nature in him, being entirely devoid of passions.‡

Although, as already remarked, Cicero has severely criticised the atheistic dogmas of Epicurus, he commemorates the friendship existing between the philosopher and his students in his garden as honourable to human nature.§

*Ib.

† Seneca, Ep. 31.

‡ Stob. Serm., 119.

§ De qua (amicitia) Epicurus quidem ita dicit, omnium rerum quas ad beatè vivendum sapientia comparaverit, nihil esse majus amicitia, nihil uberius, nihil

While the Platonists and other philosophical sects enjoyed their property in common, Epicurus caused each pupil to retain his property, because he thought that the common system implied mutual distrust.

Before proceeding any farther, we will allow Cicero to give his worst impressions of the Epicurean dogmas, in order that the reader may not be unduly prepossessed in favour of the philosopher or his system by any remark made by us, for we have no other interest in the discussion than to make as near an approach as we can to the truth. Cicero being engaged in a discussion with Torquatus the Epicurean, who sought to vindicate his master, exhibits his usual eloquence and sound reasoning; to this it is almost needless to add that no one had more ambition than the great Roman orator to be regarded as the champion of the orthodox faith among his countrymen; for he scarcely ever delivered an oration, either in a court of justice or in the Senate-house, without invoking the immortal gods (*Dii immortales*). "Epicurus says that the sovereign good consists in pleasure," observes Cicero, "and the sovereign evil in pain," for opposite reasons; but the word which answers in his language to that of pleasure in ours, *ἡδονή*, means among the Greeks as well as among us, the pleasure of the senses; nor has Epicurus himself given it any other signification, since he says, in express terms, that pleasure and pain belong only to the body,* and that the senses are the only judges of it. Is this positive? He says, in express terms, that he cannot even conceive the existence of any good without pleasure; nor can he understand what the Stoics mean by their sovereign good which consists in virtue, and from which pleasure is excluded. He affirms that these are words utterly devoid of sense; he specifies himself as *pleasure*, the agreeable sensations which we receive from the taste, the touch, the sight, the hearing, the smell; and finally he adds what we cannot even mention without offending decency. It is very true that, in other places, as if he blushed himself for his *Éthics* (so great is the

jucundius. Neque vero hoc oratione solum, multo magis vita, et moribus comprobavit. Quod quàm magnum sit, fide veterum fabulæ declarant, in quibus tam multis tanque variis ab ultima antiquitate repetitis, tria vix amicorum paria reperiuntur, ut ad Orestem pervenias profectus à Theseo. At vere Epicurus unus in domo, et ea quidem angusta, quàm magnos, quantaque amoris conspiratione consentientes tenuit amicorum greges? Quod fit etiam nunc ab Epicureis. — *De Finibus*, i., 20.

* We have shown above that this is a mistake on the part of Cicero.

force of natural sentiment),* he says that we cannot live agreeably without living virtuously. But the question with us is not what he says in certain places, but how we can reconcile those places with his entire system; such as it manifests itself everywhere—such as it is understood by the whole world. It is not our fault if he has despised logic, because he knows nothing of it, and understands nothing in definitions. We all define virtue as that which is just and laudable in itself, desirable in itself, independently of all personal interest, of all external praise, of all sensual enjoyment. This is clear, and Epicurus replies “that it is impossible to comprehend what good we see in virtue,” &c.†

This is pretty sharp criticism; nor can it be denied that it is just as applied to the tenets of Epicurus; and it is only these that are condemned by the critic. In the same work Cicero gives the philosopher the credit of having been a good man; and many Epicureans, he says, have been, and are at the present day, models of friendship, regular and even severe in their mode of life, governing their actions much more by the dictates of duty, than those of pleasure.‡ What Cicero blames the philosopher for chiefly is for not having made his precepts accord with his conduct, since the latter was exemplary. He says to Torquatus, “You defend that reasoning, and you seek to prove those precepts which are destructive to friendship, although Epicurus has made it worthy of heaven by his own practice of it.”§

Cicero does him similar justice in criticising his impiety in denying to the gods the government of the universe; and he is considered in the same light by Seneca, whose views of the Deity, the immortality of the soul, and rewards and punishments, make the nearest approach to those of the early Christian fathers. No critic has presented the doctrine of Epicurus on the universe in a clearer or fairer light than Seneca. “Finally,” he says, “O Epicurus, you disarm God; would deprive him of all his weapons, all his power; would

* *Tanta est vis naturæ.*

† *Cic. De Finibus, i.*

‡ “Ac mihi quidem, quod et ipse bonus vir fuit, se Multi Epicurei fuerunt, et hodie sunt, et in amicitias fideles, ex in omni vita constantes et graves, nec voluptate, sed officio, consilia moderantes, hæc videtur major vis honestatis, et minor voluptatis. Ita enim vivunt quidam, ut eorum vita refellatur oratio, atque ut cæteri existimantur; dicere melius quam facere, sic hi mihi videntur melius facere, quam dicere.”—*De Finibus, lib. ii.*

§ “Ratio ista quam defendis, præcepta quæ robas, funditus evertunt amicitiam, quamvis eam Epicurus, ut facit, in cælum efferat laudibus. At coluit ipse amicitias, quasi quis illum neget, et bonum virum, et comem, et humanum fuisse. De ingenio ejus in hic disputationibus, non de moribus quæritur.”—*Ib.*

leave him no means of doing either good or evil. Yet you would have him revered as a parent. You are grateful, as I think, or you wish to seem grateful, because you derive no benefit from him; but these atoms and other trifles of yours gather about you accidentally and rashly. Why then worship him? You say you worship him on account of his majesty, his goodness, his peculiar nature. This I concede to you: you do it in no hope—you are influenced by no reward. But there is a something—the dignity of which prompts you to this; it is virtue.”*

Thus Seneca gives him the credit of rendering to God a worship which is not mercenary; of taking no account of his own interests, but acting solely on the dictates of reason, which require that we honour whatever is great and perfect. But Seneca also had his doubts as to the sincerity of Epicurus in his views of the gods. He regarded it as highly probable that he was influenced by the fate of Socrates. He admitted, at the same time, that the philosopher had no selfish fear of death, but that he was devotedly attached to his pupils, who always implored him to give the unthinking multitude no excuse to take his life. This is but conjecture, however. All should be judged by what they say and do, not by their motives, since none but God can judge of what passes in the recesses of the heart.

Another excellent judge of character, a moralist and philosopher, vindicates Epicurus on similar grounds; we mean Plutarch, who was as much opposed to his atheism and to his principal moral precepts as the most pious Christian. In a work called the *Banquet* (*Συμπόσιον*), Epicurus has made some remarks on the relations of the sexes, which afforded his enemies a pretext to denounce him as an encourager of licentiousness. It seems that there was no other foundation for the charge than that the philosopher made some observations to his pupils on the question, whether it was better for men to keep company alone with women before or after meals. Be this as it may, Plutarch, who has carefully examined the work, declares that it contains nothing un-

* “Tu denique, Epicure, Deum inermem facis: omnia illi tela, omnem detraxisti potentiam. . . . hunc non habes quare verearis, nulla illi nec tribuendi nec nocendi materia est. . . . Atqui hunc vis videri colere, non aliter quam parentem: grate, ut opinor, animo, aut si non vis videri gratus, quia nullum habes illius beneficium, sed te atomi et istæ micæ tuæ forte ac temere conglobaverunt, cur colis? Propter majestatem, inquis, ejus et eximiam, singularemque naturam. Ut concedam tibi: nempe hoc facis nulla spe, nullo precio inductus. Est ergo aliquid per se expetendum, cujus te ipsa dignitas ducit: id est honestum.”—*Seneca, De Beneficiis*, lib. iv., c. 19.

worthy of a philosopher.* In speaking of the philosopher's atheism the same critic remarks, while condemning Epicurus for his impiety and ingratitude, that, after all, it is better to say that there is no God than to attribute to him the worst of crimes. He would much rather, he adds, have it said that there was no Plutarch than that Plutarch was a tyrant, a thief, an adulterer, &c. It is almost needless to remark that the comparison was made in allusion to the gods and goddesses of Greek and Roman mythology, who were constantly committing excesses of one kind or another. In other words, Plutarch thought that those who believed in deities, such as Jupiter, Juno, Venus, Mercury, and Apollo were represented in his time, were as impious as Epicurus, who, if he believed in God at all, deprived him of all power either to reward the good or punish the wicked. In illustration of this, he reminds his readers of such orthodox stories as the theft of Apollo's cows by Mercury, &c.

But no vindication of Epicurus, as a philosopher or a man, could prevent his false teachings, in regard to the Creator, from doing mischief. We may believe those good men who assure us that he did much more good than harm in his own time. But when his views were given to the world at second hand the results were different. It is no exaggeration to say that some of his disciples have done more mischief to mankind than those of any other philosopher, ancient or modern. This is true, for example, of Lucretius, who, in his great poem, *De Rerum Natura*, exaggerates every feature of the Epicurean philosophy. All other works together do not treat the subject more fully than this; not one of the numerous pupils who lived with Epicurus in his garden had a more enthusiastic admiration for him than Lucretius. Thus the Roman poet may be called the Boswell of the Greek philosopher; but the Roman is vastly more eloquent and more sublime, as well as more learned, than the Scotchman. There is not one of the Epicurean dogmas, or precepts, to which we have alluded in this paper, which is not elaborately discussed by Lucretius; and certain it is that no writer has ever made more powerful and ingenious use of sophistry in poetry or prose. No one has reasoned so profoundly on such false premises; by the extraordinary powers of his logic he has excited the admiration of the most pious Christians. Although Cardinal Polignac wrote his *Anti-Lucretius*

* Plutarch's Table Talk, iii.

to refute his atheistic arguments, he could not help being charmed by his genius. The poem of the Christian prelate is undoubtedly a fine production; but it is as much inferior to that of the Epicurean poet, in grandeur and sublimity, as the hawthorn is to the oak. Nevertheless the Cardinal has fully refuted Lucretius; but, unhappily, for one who has read the *Ani-Lucretius*, five hundred have read *De Rerum Natura*. And the comparatively few who read the former have been by no means so much charmed as the many who have read the latter; at the same time it cannot be denied that Polignac has done much good by such fine verses as the following:

"Si virtutis eras avidus, rectique bonique
Tam sitiens, quid religio tibi sancta nocebat?
Aspera quippé nimis visa est. Asperima certè
Gaudenti vitiis, sed non virtutis amanti.
Ergo perfugium culpâ, solisque benignus
Perjuris ac fœdifragis, Epicure, parabas," &c.*

In every part of his poem Lucretius evinces the most enthusiastic admiration for Epicurus; from him he derives inspiration, as the lover does from his mistress; as the one regards his mistress as perfect, so does the other regard his master. First, Epicurus is recommended to the gratitude of mankind because he first raised his voice against the terrors of religion. "When the life of men," he says, "lay foully grovelling before our eyes, crushed beneath the weight of Religion, who displayed her head from the regions of the sky, lowering over mortals with terrible aspect, a man of Greece was the first that dared to raise mortal eyes against her, and the first to make a stand against her. Him neither tales of gods nor thunderbolts, nor Heaven itself, with its threatening roar, repressed, but roused the more the active energy of his soul, so that he should desire to be the first to break the close bars of nature's portals. Accordingly, the vivid force of his intellect prevailed, and proceeded far beyond the flaming battlements of the world, and in mind and thought traversed the whole immensity of space; hence triumphant, he declares to us what can arise into being and what cannot; in fine, in what way the powers of all things are limited, and a deeply fixed boundary assigned to

* If virtue, justice, goodness, were thy care,
Why didst thou tremble at holy religion's call?—
Whose laws are harsh to vicious minds alone,
Not to the spirit that delights in virtue, &c.

each. By which means Religion, brought down under our feet is bruised in turn ; and his victory sets us on a level with Heaven.”*

This passage would be quite sufficient to show by itself the spirit in which Lucretius writes ; he avows that it is as an enemy of Religion and of God he admires and reveres Epicurus ; and every passage in the whole poem is in strict accordance with this feeling. The third book of the poem opens with a still more enthusiastic eulogy on Epicurus, in which the poet informs us that he adopts the doctrines of the philosopher : “ O thou, who from so great darkness wast first able to raise so effulgent a light, shedding a lustre on the blessings of life, thee, O glory of the Greek nation, I follow, and now place the steps of my feet formed upon thy impressed traces, yet not because I am so eager to rival, as because from the love which I feel for thee, I desire to imitate thee. For why should the swallow contend with swans ? Or what, that is all similar, can kids, with trembling limbs, and the strong vigour of the horse, perform in the race ? Thou, O Father, art the discover of truths ; thou suppliest to us paternal precepts, and from thy writings, O illustrious teacher, as bees gather from the blossoms in the flowery glades, so we feed upon thy golden words ; golden I say, and most worthy of perpetual existence. For as soon as thy system of philosophy began to proclaim aloud the nature of things, as it arose, by thy divine intellect the terrors of the mind disperse ; the walls of the world open ; I see things conducted throughout the mighty void of space ; the calm divinity of the gods appears, and their tranquil abodes, which neither winds disturb nor clouds sprinkle with showers,” &c., &c.†

* “ Primum Graios homo mortalis tollere contra
Est oculos ausus primusque obsistere contra,
Quem neque fama deum nec fulmina nec minitanti
Murmure compressit cælum, sed eo magis acrem
Irritat animi virtutem, effringere ut arta
Naturæ primus portarum claustra cupiret.
Ergo vivida vis animi pervicit et extra
Processit longe flamman tia mœnia mundi
Atque omne immensum peragravit mente animoque,
Unde refert nobis victor quid possit oriri,
Quid nequeat, finita potestas demique cuique
Quanam sit ratione atque alte terminus hærens,
Quare religio pedibus subiecta vicissim
Opteritur, nos exæquat victoria cælo.”

—*De Rerum Natura*, lib. 1. p. 66, et seq.

† “ E tenebris tantis tam clarum extollere lumen
Qui primus potuisti illustrans commoda vitæ,
Te sequor, o Graie gentis decus, inque tuis nunc
Ficta pedum pono pressis vestigia signis,
Non ita certandi cupidus quam propter amorem
Quod te imitari aveau ; quid enim contendat hirundo

This shows that Lucretius was well acquainted with the writings of Epicurus; and since the poet was undoubtedly one of the most learned men of his time, as well as a genius of the first order, it might well be inferred from his praise, even were it not corroborated, as it is, by that of so many other illustrious thinkers, that Epicurus was no trifler, no debauchee, no inebriate, no sensualist. A person of this character could not have elicited such praise from such men, no matter how highly gifted he had been, for we know from personal observation, as well as from history, that an excessive indulgence of the passions soon enfeebles the most powerful and brilliant intellect. The surfeits alone which Epicurus is accused of having taken at table, would have disqualified him for the duties of even an ordinary teacher. Gluttons do not think, write, and teach as he did; still less could habitual drunkards do so. As already remarked, the cause of truth or religion does not require that even an atheist and the enemy of all religion should be calumniated.

Lucretius regards him not only as the greatest of all benefactors of mankind, but as a god; "who," he says, "has such power over words that he can compose eulogies proportionate to the merits of him who has left us such blessings obtained and acquired by his own intellect. No one, as I think, formed of a mortal body, would ever be able. For if we ought to speak as the known dignity of the subject which he expounded requires, he was a god, a god I say. O illustrious Memmius, who first discovered that discipline of life which is now called wisdom! For compare with his investigations the ancient discoveries of others which are called divine. For which reason, he from whom the sweet consolations of existence was spread already through mighty nations, calm the minds of men, seems to us the more justly to be accounted a god."^a

Cycnis, aut quid nam tremulis facere artubus hædi
 Consimile in cursu possint et fortis equi vis?
 Tu, pater, es rerum inventor, tu patria nobis
 Suppeditas præcepta, tuisque ex, inclute, chartis,
 Floriferis ut apes in saltibus omnia libant,
 Omnia nos itidem depascimur aurea dicta,
 Aurea, perpetua semper dignissima vita."

—*De Rerum Natura*, lib. iii, 1-13.

^a "Quis potis est dignum pollenti pectore carmen
 Condere pro rerum majestate hisque repertis?
 Quiæ valet verbis tantum qui fingere laudes
 Pro meritis cuius possit qui tanta nobis
 Pectore parta suo quæsitæque præmia liquit?
 Nemo, ut opinor, erit mortali corpore cretus."

—*Ib.*, lib. v. 1-8.

The poet opens his sixth book with a eulogy on Athens, for what her illustrious men have done for science and arts, but chiefly for what Epicurus has done. "Athens, moreover," he says, "first afforded sweet consolations of existence when she gave birth to that *pre-eminent* man, endowed with such mighty genius, who once poured forth instruction on all subjects from his truth-speaking mouth, and whose fame spread abroad of old on account of his discoveries, is raised, *since his death*, even to the skies." Since Epicurus was thus beloved and admired by a Roman nearly three centuries after his death, it is not strange that he was idolized by the pupils with whom he conversed daily, and to whom he read all his writings before they were made public.

But we have learned more from Lucretius than his admiration of his master; indeed he makes us familiar with every argument which Epicurus was in the habit of adducing in favour of his various doctrines. He had no views on the universe or its origin, on religion or morality, which are not fully exhibited in this poem. We have already seen what the opinion of master and disciple is of the gods. It is doubted whether Lucretius more than Epicurus believed in the existence of any eternal beings, although one as well as the other speaks of them freely; but both deny that they created the world, or can exercise any control over it, whether to serve or injure it. Upon the other hand, both have taught that the whole universe is perishable. The argument of Lucretius is, that the world had a beginning, and therefore must have an end. Nearly the whole of the fifth book is devoted to a proof of this. The poet undertakes to prove, in turn, how the sea, the earth, the sun, &c., must necessarily cease to exist; and never were error and impiety presented in a more fascinating garb. "Nor does it escape my consideration," he says, "how new and wonderful a subject it is for your reflection that there will be an end to the heaven and the earth, and how difficult it is for me to convince you of this with arguments; as it generally happens, indeed, when you offer to the ear a subject hitherto strange to it, and yet cannot submit to the sight of the eye, or put it in the hand, the avenues through which the nearest main road of belief leads into the human breast, and the regions of the mind."*

We need not proceed any farther in this direction to show the influence of Epicurus on some of the greatest minds of antiquity; although we have been able to do little more than

* De Rerum Natura. Lib. v, 98 et seq.

allude to that influence. We may remark here, in general terms, that not only had Epicurus more pupils in his school than any other philosopher; he had also incomparably more disciples after his death who were philosophers. Among the latter may be mentioned Timocrates and his brother, Athænus, Leonteus, Zeno of Sidon, Demetrius Lacus, Diogenes of Tarsus, Polystratus; the two Ptolemys were his disciples, so were Colotes and Idomeneus, Heliodorus of Stratonica, and Hemarchus of Mytilene. It must be borne in mind that there have been a large number of illustrious thinkers, who, without openly avowing the Epicurean doctrines and predilections were still followers of Epicurus. Among these may be mentioned both Horace and Virgil, Cæsar and Sallust; and notwithstanding the criticisms of Cicero, which we have quoted above, most of his biographers are of opinion that the great orator was an Epicurean, at least, in his ideas of pleasure and pain. Even Horace, who was less scrupulous in his morality than almost any of his illustrious contemporaries, avoids giving any encouragement to the Epicurean doctrines; nowhere does he commendably speak of either Epicurus or his great eulogist and disciple, Lucretius. But this did not arise from any want of esteem on his part for one or the other; indeed, nothing is more certain than that he admired each, and especially the master. But at this time the Epicurean doctrines had been so much abused by bad, vicious men, who called themselves the disciples of Epicurus, that the whole system had fallen into disrepute. In short, the term Epicurean had become one of reproach throughout the world. That the Fathers of the Church should have denounced a system which had thus degenerated into a school of vice and impiety, is no evidence of their being either bigoted or intolerant, as alleged by the enemies of virtue and religion. They simply did their duty as moralists and Christian ministers. Had they pursued any other course, or made any compromise with the pretended disciples of Epicurus, their efforts to establish Christianity would have been fruitless, and all Europe might have been in a more deplorable state to day, morally and religiously, than that of Rome, which called forth the satires of Horace, Juvenal, and Persius.

But the influence of Epicurus and Lucretius was too powerful to be entirely crushed in a thousand, or even two thousand years. There is not one of our modern atheists who has not drawn his chief arguments against the Cre-

ator of the universe from the Epicurean philosophy. If the reader will examine the works of all, he will see how little they contain that is original; and, in nine cases out of ten, this little consists of an exaggeration of the doctrines of Epicurus. Even Descartes had the physical system of the illustrious Greek before his mind when he promulgated the apothegm, "*Donnez-moi la matière et le mouvement, et je construirai le monde.*" The same matter and motion, be it remembered, were the chief gods of Epicurus; according to him it is they that had formed the universe and every being that inhabits it. In his physics, Descartes makes nature too independent of the Deity; whereas, in his metaphysics, he makes God and nature nearly one; and his *plenum* had the effect of rendering his system still more confused. Thus it was that he left room for the two systems of Spinoza and Malebranche—one regarding all things as God, the other regarding God as all. It does not seem that Descartes had any better reason for maintaining that "nature abhors a vacuum," than that Epicurus had taught thousands of years before him that a vacuum was essential to motion, a doctrine which, as already intimated, has received the sanction of Copernicus, Newton, Kepler, and Galileo. Be this as it may, it is beyond dispute that Descartes, as well as Spinoza and Malebranche, has been influenced by Epicurus.

Still more directly has Baron d'Halback been influenced by the Greek philosopher. But the latter was not so learned, neither was he possessed of so much genius as either Spinoza or Malebranche, although a much more fascinating writer; and the consequence is that he greatly exaggerates those Epicurean doctrines already exaggerated to a considerable extent by the calmer and more thoughtful genius of Lucretius. Hence it is that of all books written in ancient or modern times, d'Halback's "System of Nature" is the most atheistical. While there is some doubt as to the atheism of all other writers known as atheists, not excepting Epicurus, Lucretius, and Spinoza, all doubt is removed by d'Halback; so that he might be distinguished in this, if in nothing else, from the Greek atheist. In proof of the fact, we need only quote a few remarks from the "System of Nature." "It is contended," says d'Halback, "that animals furnish us with a convincing evidence that there is some powerful cause of their existence; the admirable adaptation of their different parts mutually receiving and conferring

aid towards accomplishing their functions and maintaining in health and vigour the entire being, announce to us an Artificer uniting power and wisdom. Of the power of nature it is impossible for us to doubt; she produces all the animals that we see *by the help of combinations of matter which is in incessant action*; the adaptation of the parts of these animals is the result of the *necessary laws of their nature* and of their combination. When the adaptation ceases, the animal is necessarily destroyed. What then becomes of the wisdom, the intelligence, or the goodness of the alleged cause to which was ascribed all the honour of this boasted adaptation.* If this be compared with the passages we have quoted from Lucretius, it will be seen that the ideas of the ancient and the modern are identical; the only difference between them consists in the language in which those ideas are clothed. D'Halback differs somewhat from his master, however, as he proceeds, but only, as we have said, in being more barefacedly atheistic. Thus, for example, nowhere has Epicurus or Lucretius used such language as the following: "Where are the wisdom, the goodness, the foresight, the immutability of an artificer whose sole object appears to be to derange and destroy the springs of those machines which are proclaimed to be masterpieces of his power and skill? If this God can act no otherwise than thus, he is neither free nor omnipotent. If his will changes he is not immutable. If he permit machines which he has endowed with sensibility to experience pain, he is deficient in goodness. If he has been unable to render his productions solid and durable, he is deficient in skill. Perceiving, as we do, the decay and ruin, not only of all animals, but of all works of deity, we cannot but inevitably conclude that everything performed in the course of nature, is *absolutely necessary*—the unavoidable result of its imperative and insuperable laws, or that the artificer who impels her various operations, is destitute of plan, of power, of constancy, of skill, and of goodness."†

We have no apprehension that any of our readers will have less faith in the Creator of the universe, or less admiration for his works, on account of any of the atheistic arguments which we have thus glanced at, otherwise we should not have noticed them. They only show that no genius is so profound, or great, but that in some particulars he may

* *Système de la Nature*, partie II, chap. v, p. 153.

† *Ib.*, p. 157 *et seq.*

err even more than the most thoughtless ; for it is given to none to know all things. No system of cosmology is more easily refuted than that of Epicurus.

We call it his, although it had previously been taught by Leucippus and Democritus, because it was his superior genius that brought it into notice. Thus Epicurus is a borrower, or, as some call him, a plagiarist, but he is so only in the sense in which Shakespeare and Milton are borrowers, or plagiarists, for it is well known that both our great poets availed themselves of what others, vastly inferior to themselves, had previously thought and written. Certainly, there was as great a difference between the works of Epicurus and Democritus, or Leucippus, as there is between those of Milton and the old Anglo-Saxon poet, Cædmon, or between the works of Shakespeare and those of the other poets from whom he has borrowed so largely ; yet neither Milton nor Shakespeare can be regarded as a plagiarist, since each has vastly improved what he has borrowed, incorporating it with the creations of his own genius, from which it derives additional lustre. And it is as an author and philosopher, not as a teacher of religion, we are bound to consider Epicurus ; and if we render him this justice, we shall see that, after all, he was no worse, even in a religious point of view, than Hesiod, Homer, or Virgil, each of whom has attributed to the gods the grossest excesses—nay even the most atrocious crimes.

Nor is their mode of accounting for the origin of the universe much better than that of Epicurus ; and if they recognise in it the agency of the gods, it is only in a manner that is much better calculated to turn them into ridicule than to inspire us with feelings of veneration or reverence. Yet the works of Homer, Hesiod, and Virgil are not only permitted by the most pious Christians to be read, but also to be used as text-books in schools and colleges wherever literature is cultivated. Nor is it to be doubted that, if the works of Epicurus had survived the ravages of time, they would also have been used as text-books. Surely one who devoted his life to study, research, and investigation—who was always willing to communicate his knowledge as fast as he acquired it, and who laid it down as a fundamental principle that before making any pretensions to philosophy it was necessary to dissipate ignorance, and that even pleasure, *ἡδονή*, was to be obtained only by the calm exercise of reason—surely a philosopher who acted through life on these precepts, must

have infused into his works a refining and elevating spirit in spite of his atheistic dogmas. As to the latter, they are so contradictory in themselves that they scarcely need to be refuted; we may say, at least, that our readers need no refutation of them. It may not be entirely superfluous, however, to make a few additional observations on the subject before we close.

The basis of the Epicurean system is most briefly and clearly defined by his disciple Lucretius, by the precept that nothing comes from nothing, and that nothing can return to nothing:

"Ex nihilo nihil, in nihilum nil posse reverti."

Yet, according to his system, everything is produced from nothing, except matter, which, he maintains, existed of itself from all eternity. As all things proceed from matter and motion, it is necessary that the latter should also be eternal; otherwise it would have required an intelligent cause to give it origin; and accordingly Epicurus declares it eternal. Assume that the atoms have been in motion from all eternity, then it follows that, by their fortuitous meeting or concurrence, everything in the universe has been produced. But in order to render this feasible, it has been necessary to give those atoms two motions—one downwards, in a perpendicular line, the other in a line somewhat inclined from the perpendicular. Now, Epicurus himself admits that space is infinite; and there is no precept more universally recognised among philosophers and scientific men that there is nothing more unphilosophical than to suppose either a downward or upward motion in infinite space. Motion may be said to be upward or downward in relation to the earth, the sun, any of the primary planets, or the fixed stars; but it is evident that the motion that would be downward in relation to one should be upward in relation to another; and be it remembered that if Epicurus is right, not only is the earth itself the result of this fortuitous concurrence of atoms, but also the sun, the planets, the fixed stars, the comets, &c.

He admits that there is no cause for the declination of the atoms; but maintains it is necessary that it should take place. Without it no beings could be produced; therefore, all produced by its means are produced from nothing—that is, without any adequate cause, which is impossible, according to the philosopher's own reasoning. Again, if nothing can be produced from nothing—in other words, if nothing exists or has existed without a cause, what is the cause of motion?

What gave it its origin? If nothing did, then something—nay, the greatest of all things and of all beings—comes from nothing!

But supposing it is admitted that all things have been produced by this fortuitous concourse of atoms, how is it that, so far as history tells us, no new beings have been produced for many centuries? If animals, plants, or minerals were produced by chance, three or ten thousand years ago, why are not some produced now by the same means? How is it that no organic being is produced any longer without a germ?

It is admitted by Epicurus that atoms have no intelligence, although Democritus had endowed them with animation; how is it, then, that they can adapt the organs of the various species of animals to their respective modes of life, the sort of food they are destined to live on, &c.? Since those atoms are in perpetual motion and acting on each other only according to chance, why do they not destroy to-day what they produced yesterday?

The Epicureans admit that the organs of all animals are well suited for their purposes, but they deny that they were designed to be so. None of our organs, they say, were made for the uses we make of them, but having, by chance, found them useful for certain purposes, we use them accordingly; that is, if we are to believe Epicurus and Lucretius, our eyes were not made to see, our ears to hear, our feet to walk, or our stomachs to digest; but we use them respectively for those purposes, because we have discovered accidentally that they are useful for them. The dog's nose was not made to smell, but he has discovered that it is useful for that purpose. Of course the same is true in regard to his heart, lungs, veins, and arteries; all were made by the fortuitous concourse of atoms. But the dog has found, also by chance, that the heart is useful for receiving the blood from the veins, and for propelling it through the arteries, after it has been duly purified by the lungs, and he turns each to account accordingly! So much, then, for the manner in which Epicurus and his followers have sought to dispense with the Creator of the Universe. Now, is not the atom theory as illogical and absurd as it is impious? What could be more superfluous than an elaborate refutation of such a theory?

Nor was it left to any Christian writer to perform any such work. The Pagans themselves had abundantly refuted Epicurus. Cicero had fully exposed the absurdities of his cos-

mogony before any of the Fathers of the Church wrote on the subject. He told the Epicureans that it would have been much less dishonourable for their master to have made no reply to those who contradicted his atheistic doctrines, than to have had recourse to such arguments as those by which he has sought to establish his atom theory, by way of showing that the universe needed no Creator, and had no Creator.*

Notwithstanding the absurdity of the cosmology of Epicurus, it is certain, as already remarked, that he has done much harm; but we think it equally certain that he has done more good; and if we are right in this, he is entitled to be ranked among the benefactors of mankind. Before this is agreed to, however, it must be borne in mind that perfection is not the lot of man. That all-wise Being, whose creative power and government of the world Epicurus has denied, has so ordered it that the greatest faults are often combined with the greatest merits, or the noblest gifts. So great was the learning of Epicurus; so heartily did he devote himself through a long life to the development of the human mind; so zealously did he labour not only to cultivate the arts and sciences on account of their own beauty and attractiveness, but also to render them subservient to the uses and happiness of man; and so well did he succeed in those laudable efforts that he would have been deemed a god himself by all his contemporaries, as well as by his students and disciples, had he not obscured all his merits by his impious denial of the Creator of the universe.

ART. II.—1. *Parliamentary Reports, and other Public Documents.* London.

2. *History of British Journalism.* By ALEXANDER ANDREWS. London, 1859.

IN the early part of the seventeenth century the majority of the books published were embellished with numerous woodcuts, and the printers were thus enabled to please the

* "Hoc persepe facitis, ut cum aliquid non verisimile dicatis, et effugere reprehensionem velitis, afferatis aliquid, quod omnino ne fieri quidem possit: ut satius fuerit illud ipsum de quo ambigebatur, concedere, quam tam impudenter resistere: velut Epicurus cum videret, si atomi ferrentur in locum inferiorem suapte pondere, nihil fore in nostra potestate, quod esset earum motus certus et necessarius, invenit quo modo necessitatem effugeret, quod videlicet Democritum fugerat: ait Atomum, cum pondere, et gravitate directo deorsum feratur, declinare paululum. Hoc dicere turpius est, quam illud quod vult, non posse defendere."—Cicero. *De Natura Deorum*, lib. i., p. 96.

public, and, at the same time, remunerate themselves. The printing of religious works had led to the printing of other books, especially the ancient classics, and as but a few understood the learned languages, the attraction of woodcuts caused them to be studied more. Taking off the impression of the cuts was executed by the typographical process, and consequently there was no separate expense after the original cost of drawing and engraving. As the original readers, however—principally nobles, rich citizens, and scholars by profession—began to desire something more expensive than woodcuts, copper-plates were introduced into works of all kinds. The impressions from these being obtained by an entirely different process, the prices of books were accordingly raised to cover the additional expense to which the printers were subjected.

The printing-press in the seventeenth century was a rude one. It consisted of a common screw press, somewhat resembling a cheese-press, with a simple contrivance for running the form of types under the screw, after the form was properly inked. As the table, which contained the types, was solid and unyielding, the printers were compelled to exercise the greatest care in preventing the heavy pressure from injuring the face of the letters. The types were inked by hand. Two circular cushions, afterwards called "balls," were employed for this purpose, and the printer was obliged to make his own balls. The sheepskins were prepared in the printing-office, where the wool with which they were stuffed was also carded. The quantity of ink wasted was enormous. These balls remained in use up to the beginning of the present century.

In the year 1500, learned men were employed as correctors of the press to distinguished printers. Bishops, priests, lawyers, and physicians occupied this department, and as the printers added to their names those of the correctors of the press, the editions were valued according to the talents of the corrector. In the seventeenth century, the printers held gain in more esteem than glory, and began to display a want of forethought in the selection of their correctors. The compositors were comfortably seated on cushioned stools, and had the privilege of wearing a sword and dirk; a recognition that men of birth and education were accustomed to practise this branch of printing.

The ink was decidedly bad. This is plainly shown by the fact that the ink in the English records, from the fifth to the twelfth centuries, is of a better colour than in those from

the fifteenth to the end of the seventeenth. There is a want of legibility in the latter, whilst the former remain as perfect as they were on the day when they were first written. The ink of the twelfth century had not the same properties, except colour and gum. In the seventeenth century, gall-nuts, copperas, and gum formed the component parts of ink, whereas, at an earlier age, soot and ivory-black were the chief ingredients.

James I., who ascended the English throne in 1603, seems to have possessed a real love of letters, but his writings are of so inferior a character that, had he been anything less than a king, he would never have been raised into notice. The period, extending from his ascension to the throne to the revolution in 1688, was an unfavourable one for the diffusion of knowledge. There was so much pedantry in the court of the Stuarts, and so much controversy among the subjects on matters of church and state, as left them but little time to cultivate their understandings. The press was principally employed in publishing works of a political nature.

In 1612, the city of London, having some time before had the Province of Ulster granted to it by the king for a plantation, the corporation sent thither about three hundred persons "of all sorts of handicrafts-men," chiefly to inhabit the cities of Londonderry and Colerain. It is almost an impossibility to obtain any correct data relative to printing in Ireland, but, probably, a few printers were included among the "handicrafts-men" sent by the city of London.*

* It would have been no wonder had Ireland neither printers nor books at this time, since it was a crime, punishable with transportation, and even death, from the time of Henry VIII. to be a schoolmaster among the "mere Irish." Those Irish who wished to educate their children had to send them to France or Italy for that purpose; and then when they returned they were regarded with suspicion as persons who knew too much, and persecuted accordingly. This is the barbarous code which Edmund Burke proclaimed to the world, "had a vicious perfection. It was a complete system," he says, "full of coherence and consistency; well digested and well disposed in all its parts—well fitted for the oppression and degradation of a people, and the debasement in them of human nature itself, as ever proceeded from the perverted ingenuity of man." Yet Ireland had had printers before London sent those "handicraftsmen." More than half a century previously (1550) Humphrey Powell printed "the Liturgy and several books of poetry." We have no record at hand of the art in that country of an earlier date. But John Ereginus had flourished many centuries earlier—801-807—had written his *De Divisione Naturæ*, and many other learned works, and occupied an important position in the brilliant court of Charles the Bald of France. "On ne saurait comprendre cet homme véritablement extraordinaire," says M. Hareau, "sans admettre qu'il existait alors en Irlande, à l'extrême limite de l'ancien monde, une colonie des philosophes chez lesquels s'était maintenue, à-peu-près intacte durant l'invasion barbare, la tradition, ailleurs complètement effacé de la dernière école grecque, l'école d'Alexandrie."—*Nouv. Biog. Générale*, t. xvi., p. 253.

The "English Mercurie," published during the reign of Queen Elizabeth, was the first genuine newspaper printed in England.* The earliest number in the British Museum, marked fifty, and dated July 23d, 1588, contains an account of a visit of the Scotch ambassador to her majesty. On the occasion he "delivered a letter from the king, his master, containing the most cordial assurances of adhering to her majesty's interests, and to those of the Protestant religion." From 1588, up to and including the reign of James I., 1603 to 1625, packets of news, in the shape of small quarto pamphlets, were occasionally issued. They bore the names of the different countries to which they referred, such as "Newes from Italy, Hungary," &c., and were universally believed to be translated from the Low Dutch. They were eagerly sought after by the people, and Robert Burton, in his "Anatomic of Melancholie," which appeared in 1621, complains that "if any one read now-a-days, it is a play-book, or a pamphlet of newes." During the thirty years' war, when the victories of Gustavus Adolphus had excited public curiosity, these occasional pamphlets were converted into a regular weekly paper, entitled "The Certain Newes of this Present Week." This publication, which may be regarded as the first journal of the kind in England, was printed by Nathaniel Butler, in 1622. There is also an account of "The London Weekly Courant," in the books of that year, but this is, probably, the same paper.

From 1623 to 1664, only two editions of Shakespeare's plays, amounting to one thousand copies, were published, which shows that the people had no great partiality for this illustrious poet.

Licensers of the press were first established by Charles I., in 1625. This gave rise to a new class of publishers, who were known as the editors of "unlawful and unlicensed books." Sparkes, publisher of Prynne's "Histriomastix," was one of this class of unlawful printers. In parliament, the Presbyterian party, who were thus deprived of the organs of the press, cried out aloud for its freedom from restraint, but, on coming into power themselves, they

* Nearly two centuries previously the Venetians had regular newspapers, which they called *gazettes*. The first newspaper ever seen in England was one brought to the court of Henry VIII. by the Venetian ambassador, whose countrymen were undoubtedly the first that issued that highly useful class of publications; although we are often told at the present day that the "broad sheet" is one of the many great things we owe to the inventive genius of our Anglo-Saxon ancestors!

maintained the office of licenser of the press with extreme rigour.

In the early part of the reign of Charles I. the people were more desirous to learn what was passing abroad than at home, and Lord Clarendon informs us that "no man ever enquired what was doing in Scotland, nor had that kingdom a place or mention in one page of any gazette."

The paper of the period was mostly imported from France, for, although the first paper mill was erected by a German, at Dartford, in 1538, it was not until 1713 that Thomas Watkins brought paper-making to perfection. On June 18, 1626, Charles I. levied "customs and imposts upon all such merchandises as were imported and exported," for the purpose of carrying on the war with Spain, which had been begun by his father, James I. This, however, having proved to be too slow a method of raising money, a general loan was resolved upon, and commissioners were appointed for that purpose. The assessment of the loan met with much opposition, and George Abbot, Archbishop of Canterbury, having refused to license a book in behalf of the loan, was suspended for a time from his archepiscopal jurisdiction.

In 1626, "The Mercurius Britannicus," a continuation of Butler's "Newes of this Present Week," made its first appearance. This was succeeded by the "German Intelligencer," in 1630, and the "Swedish Intelligencer," in 1631. The latter, which was compiled by William Watts, of Caius College, was a quarto pamphlet, and contained the exploits of Gustavus Adolphus. The English printers, from Caxton to John Day, who, in 1567, published a book of antiquities, combined printing and letter-founding. After this, the trades began to be separated; for, by a decree of the Star Chamber, in 1637, it was ordered that "there shall be four founders of letters for the kingdom, and no more." From 1640 to 1660 upwards of thirty thousand volumes of tracts were published. The long parliament was the first that published periodical appeals to the people, with an account of their proceedings. The earliest of them, called "Diurnal Occurrences of Parliament," appeared on November 3, 1641. The "London Gazette" was first printed on the 22d of August, 1642. Copies of the earlier numbers of this paper are now very scarce.

During the Civil Wars of Cromwell, periodical papers, by disseminating among the people sentiments of royalty

or rebellion, began to acquire that political importance which they have ever since retained. Large numbers of "Diurnals" and "Mercuries" were issued, and in the year 1643, when the war was being carried on with renewed spirit by the Cavaliers and Round-heads, nearly a score are said to have been started. Among the papers printed in this year may be mentioned "The Kingdom's Intelligencer," "England's Memorable Accidents," "The Diurnal of Certain Passages in Parliament," "The Mercurius Aulicus," "The Scotch Intelligencer," "The Parliament's Scout," "The Parliament's Scout's Discovery; or, Certain Information," "The Mercurius Civicus; or, London's Intelligencer," "The Country's Complaint, &c.," "The Weekly Account," and the "Mercurius Britannicus."

Peter Heylin, a clerical adherent of Charles I., and one of the staunchest defenders of civil and ecclesiastical tyranny, in the preface to his "Cosmography," mentions that the affairs of each town or war were better presented in the weekly news-books. Thus, we find papers entitled "News from Hull;" "Truths from York;" "Warranted Tidings from Ireland," &c. As the people, however, became more and more interested in the contest, papers began to be published two or three times in the course of a week. Among these were, "The French Intelligencer;" "The Dutch Spy;" "The Irish Mercury;" "The Scots' Dove;" opposed to "The Parliament Kite," and "The Secret Owl." Humorous papers were also published in weekly numbers, such as "Mercurius Acheronticus; or, News from Hell;" "Mercurius Democritus," containing an account of what was transpiring in the moon; and "The Laughing Mercury," with perfect news from the antipodes. As the strife waged hotter and hotter, the titles of the papers became keener and keener. "Heraclitus Ridens" found a severe antagonist in "Democritus Ridens," and "The Weekly Discoverer" was, soon after its publication, vanquished by "The Weekly Discoverer Stripped Naked." "Mercurius Britannicus" was also grappled by "Mercurius Mastix," faithfully lashing all Scouts, Mercuries, Posts, Spies, and other intelligencers. Mercury was the prevailing title of these "news-books." They were devoted principally to political purposes, and, by serving as the receptacles of party-malice, soon became a public nuisance. They were the faggots which kept alive the smouldering ashes of civil discord. A vast number of these papers were issued during the war,

and so great an acquisition was the press considered at that time, that each of the rival armies carried along with it a moveable printing office.

The publication of parliamentary proceedings was continued to the restoration of Charles II. in 1660. They partook of the nature of our modern magazines, and were generally called "Mercuries," as "Mercurius Politicus," "Mercurius Rusticus," &c., and one of them, in 1644, appears under the strange title of "Mercurius Fumigosus; or The Smoking Nocturnal." On the 14th of June, 1645, the battle of Naseby, fought by the Cavaliers under Charles I., and the Round-heads, under Fairfax, ended in the entire rout of the king's army and the seizure of all his artillery and ammunition. Among the spoil was the king's letters, which the parliament afterwards published. These letters do not give us a very high idea of the king's genius and morals. On the contrary, they make it manifest that he contemplated deception whilst professing good faith, and that he did not possess the attributes of common honesty or any ability.

The office of licenser of the press lay dormant a short time under Cromwell. Mabot was a conscientious licenser, and desired the Council of State, in 1649, for certain and specific reasons, to be discharged from active duty in this department of public affairs. The probability is that Milton's "Areopagitica; or, Speech for the Liberty of Unlicensed Printing to the Parliament of England," had led him to adopt this course of conduct.

The first "newes-book" published in Scotland was issued by the commander of Cromwell's forces at Leith, who ordered the attendant printer to furnish impressions of a London diurnal, for the instruction and amusement of his men. Its title was "Mercurius Politicus," and the Scotch reprint made its first appearance on the 26th of October, 1653. In November, 1654, the establishment was transferred to Edinburgh, where the reprinting of newspapers was continued until April 11th, 1660. In a London weekly newspaper, entitled a "Perfect Account of the Daily Intelligence, 16—23, November, 1653," we find the following advertisement in reference to a lottery :

"ADVERTISEMENT.

"At the Committee for Claims for Lands in Ireland—Ordered, That a Lottery be at Grocers-Hall, London, on Thursday 15 Decem. 1653, both for Provinces and Counties, to begin at 8 of the clock in the forenoon of the same day; and all persons concerned therein are to take notice thereof.

"W. TIBBS."

This lottery, which took place during the commonwealth, appears to have escaped the observation of those who take delight in hunting up accounts of such adventures. The "Perfect Picture of State Affairs," a London paper, published on the 26th of July, 1656, contains the following:

ADVERTISEMENT.

"There is an Office for generall accommodation of all people, newly erected and kept at the house of Edward Soolly, Gentleman, Situate in Basinghall street, near Blackwell-hall, London. There are several registers there kept, where such persons may enter their names, and desire, that shall at any time have occasion in any of the particiars following, viz. Such as have a desire to Mortgage or sell any Land or Houses, or to let to farm any Land by Lease or yearly Rent in any part of England, or such as desire to be boarded by the year or otherwise, or to take lodgings in, or Country Houses neer the City of London. Or such as shall at any time want able and fit Soliciters to follow any businesse, and likewise such as shall want either men Servants, Apprentises, Clerks, or others, or Maid Servants, or Nurses for children. There are likewise registers kept to enter the names and places of abroad of all such as shall desire to buy Land or houses, or to let out money upon Mortgage, or to take to farm any Land, or to take Country Houses about the City, or Lodgings in the City, or to take any to board; and likewise for all Servants that shall at any time want a Service, and make their desires known at the said Office. By which means people may easily come to the knowledge one of the other, and their several necessities and occasions be speedily supplied.—And likewise all Ministers' Widdows, and others, that have Studies of Books to sell at second hand, may at the said Office give in a Catalogue of their Books, and such as want any Books scarce to be come by, may upon their repair to the said Office view the said Catalogues, and very probably know where to be supplied."

Let us take a glance now at the newspaper-writers during the period of the Commonwealth. Marchmont Needham, a man of versatile talents, was the editor of the "Mercurius Britannicus," "wherein he endeavoured to sacrifice the fame of some lord, or any person of quality, or of the king himself to the beast with many heads." Captain Needham of Gray's Inn, as he was generally called, at first sounded his trumpet in favour of Cromwell, but having been imprisoned for aspersing Charles I., he requested an audience with the king, and, being pardoned, became an ultra-royalist. He wrote the "Mercurius Pragmaticus," in which he sneered at the Round-heads. He was finally won over by President Bradshaw and galled the royalists in his "Mercurius Politicus." On the Restoration of Charles II. he escaped into Holland, where he waited for an act of general oblivion. Needham obtained pardon, under the great seal, for having given money to a hungry courtier. Becom-

ing a physician in later life, he practised among the adherents of the Presbyterian party, but was universally hated by the royalists. Sir John Birkenhead was the editor of the "Mercurius Aulicus," a paper published at Oxford, and devoted to the advancement of the king's interests. He was a keen wit and bitter satirist, and wrote numerous political pamphlets. He was imprisoned several times by order of parliament, and, after his release, made his living principally by writing poems for lovers, and translating. After the Restoration, Charles II. appointed him one of the masters of requests with a salary of three hundred pounds a year, but he showed his baseness by neglecting those who had been his friends in adversity.

The third and last writer of any note during this period was Roger L'Estrange. He was regarded as a model for all political writers to follow. After the Revolution, Queen Mary displayed her contempt for him by this anagram:

"Roger L'Estrange,
Lie strange Roger."

On June 6th, 1660, shortly after the Revolution, an act was passed to enable the soldiers of the Commonwealth, after disbanding, to exercise trade in any corporation, in order that they might be in a position to live honestly. Probably, many of them recognised the fact that the pen is mightier than the sword, and laying aside their warlike habits, devoted themselves to the cultivation of the noble art of printing. In 1660, the office of licenser of the press was revived, and in the same year, also, the proceedings of parliament were interdicted to be published, unless by authority. From 1661 to 1668, no less than seventy "newes-books" were published under various titles, and almost all of them were of a sarcastic description. For example, we have the "Mercurius Meretrix;" "Mercurius Radamanthus;" *Public occurrences, truly stated, with allowance! News from the Land of Chivalry, being the pleasant and delectable History and Wonderful and Strange Adventures of Don Rogero de Strangmento, Knight of the Squenking Fiddlestick, &c.*

The first regular newspaper, in the present form, was the "Public Intelligencer," published by Sir Roger L'Estrange, August 31, 1661. In January, 1661, the "Mercurius Caledonius," the first regular paper in Scotland, was established. The ten numbers which were published, contain an account of the extravagant feeling of joy resulting from the Restora-

tion, together with a great deal that must be set down as anything but clever and amusing. For example, "March 1, 1661. A report from London of a new gallows, the supporters to be of stones, and beautified with statues of the three Grand Traitors, Cromwell, Bradshaw, and Ireton." And again—"As our old laws are renewed, so likewise are our good, honest customs; for nobility in the streets are known by brave retinues of their relations; when, during the captivity (the commonwealth), a lord was scarcely to be distinguished from a commoner. Nay, the old hospitality returns; for that laudable custom of suppers, which was covenanted out with raisins and roasted cheese, is again in fashion; and where before a peevish nurse would have been seen tripping up stairs and down stairs with a posset for the lord or lady, you shall now see sturdy jackmen groaning with the weight of sirloins of beef, and chargers loaden with wild fowl and capon."

After the Restoration, the newspapers contained a greater variety of interesting topics, and the contests between the rival editors became, as it were, a thing of the past. "The Kingdom's Intelligencer," published in London, 1662, contained more information than any of the former "newspapers." Notices of the proceedings of parliament and the law-courts, were to be found in its columns, and Deaths for the first time became a speciality. It also contained some curious advertisements, such as:—"The Faculties' Office for granting licenses (by act of parliament) to eat flesh in any part of England, is still kept at St. Paul's Chain, near St. Paul's churchyard." And, again, "There is stolen abroad a most false and imperfect copy of a poem, called *Hudibras*, without name either of printer or bookseller, as fitting so lame and spurious an impression. The true and perfect edition, printed by the author's original, is sold by Richard Marriot, under St. Dunstan's church in Fleet Street; that other nameless impression is a cheat, and will but abuse the buyer as well as the author, whose poem deserves to have fallen into better hands."

At this early age the publication of parliamentary speeches met with much opposition, and on the 9th of July, 1662, a warm debate occurred in the Irish parliament, concerning the publication of its proceedings, in an English newspaper, called "The Intelligencer." The Irish speaker, in consequence, wrote to Sir Edward Nicholls, the English Secretary of State, to prevent such publication in those "diurnals."

The manufacture of paper was not much encouraged in England at this time, and Thomas Fuller, a writer of the period, states that "Paper participates in some sort of the character of the country which makes it; the Venetian being neat, subtile, and court-like; the French, light, slight, and slender; the Dutch, thick, corpulent, and gross, sucking up the ink with the sponginess thereof." It is stated in "Bagford's Collections,"* that in August, 1663, Roger L'Estrange, as surveyor of the imprimery and printing-presses, had the "sole license and grant of printing and publishing all ballads, plays, &c., not previously printed, play-bills, &c." These privileges he sold to operative printers, but it is not known at what precise time his license ceased. It is a well-known fact, however, that monopolies of all kinds were granted to court favourites, in the reign of the licentious Charles II. This same Roger L'Estrange, in 1663, edited "The Intelligencer, published for the Satisfaction and Information of the People." He continued to issue this journal until 1665, and espoused with great warmth the cause of the crown on all occasions. In the "Newes" of May 18th, 1664, we find the following:

" NOTICE.

" His sacred majesty having declared it to be his royal will and purpose to continue the healing of his people during the month of May, and then give over till Michaelmas next, I am commanded to give notice thereof, that the people may not come up to the town in the interim, and lose their labour."

Evelyn, speaking of the first touching for evil by Charles II., on July 6, 1660, says that "his majesty, sitting under his state in the banquetting-house, the chirurgeons cause the sick to be brought or led up to the throne, where they kneeling, his majesty strokes their faces, or cheekes, with both his hands at once, at which instant a chaplaine in his formalities says 'he put his hands upon them and he healed them.' This is sayd to every one in particular. When they have been all touched they come up again in the same order, and the other chaplaine kneeling, and having an angel-gold (piece of money so called) strung on white ribbon on his arme, delivers them one by one to his majesty, who puts them about the necks of the touched as they pass, while the first chaplaine repeats 'that is the true light, who came into the world.' Then follows an epistle (as at first a gospel),

* Harl. MSS., No. 5910, vol. II.

with the liturgy, prayers for the sick, with some alteration, lastly the blessing ; then the lord chamberlaine and comptroller of the household bring a basin, ewer, and towell for his majesty to wash." This so-called miraculous power is said to have been first exercised by Edward the Confessor.

The first "Gazette" in England made its appearance on the 7th of November, 1665. It was at first called the "Oxford Gazette," owing to the earlier numbers being issued at Oxford, where the court was then holding and parliament sitting, in consequence of the plague in London. On the removal of the court to London, this same paper was issued on February 5, 1666, under the title of the "London Gazette." Originally, the word gazette meant a newspaper, or a printed account of the transactions in all countries, in a loose sheet, or half-sheet. Now, however, it is applied to a paper of news published by authority. The term is derived from *gazetta*, a small coin formerly current in Venice, which was the usual price of the first newspaper printed there.

In a paper entitled "The Case and Proposals of the Free Journeymen Printers in and about London," dated October 23d, 1666, it appears that the number of working printers who had served a regular apprenticeship, then resident in and about London, was no more than 140. There were some "foreigners," also—that is, workmen who had not obtained their freedom by serving a regular apprenticeship. Their number, however, was not very large, and this paper is a remonstrance against any such persons being employed. In 1666, the people began to read again and think. At the fire in London, which occurred in this year, the booksellers around St. Paul's lost two hundred thousand pounds' worth of books which were stored there, and in the neighbouring churches. From 1666 to 1689 there was published three thousand five hundred and fifty books, two-fifths of which were professional works.

Lotteries were drawn at the theatres, during the reign of Charles II. Books were held out as a lure to adventurers, by way of lottery, for the benefit of the suffering loyalists. In the "Gazette" of May 18, 1668, is the following advertisement: "Mr. Ogilby's lottery of books opens on Monday the 25th instant, at the old Theatre between Lincoln's-inn-fields and Vere street; where all persons may repair on Monday, May 18, and see the volumes, and put in their money." In the same paper of May 25th, it is announced that "Mr. Ogilby's lottery of books (adven-

turers coming in so fast that they cannot in so short time be methodically registered) opens not till Tuesday, the 2d of June; then not failing to draw; at the old Theatre between Lincoln's-inn-fields and Vere street." Mr. Ogilby was the author of these useful, though now useless "*Itinerarium Angliæ; or, Books of Roads.*" In April, 1669, the "*Gazette*" states that Charles II., the Duke of York (afterwards James II.), and many of the nobility were present "at the grand plate lottery, which, by his majesty's command, was then opened at the sign of the Mermaid over against the mews." The same paper, a few days afterwards, contains the following: "This is to give notice, that any persons who are desirous to farm any of the counties within the kingdom of England or dominion of Wales, in order to the settling up of a plate lottery, or any other lottery whatsoever, may repair to the lottery office, at Mr. Philips' house, in Mermaid-court over against the mews; where they may contract with the trustees commissioned by his majesty's letters patent for the management of the same patent, on the behalf of the truly loyal, indigent officers."

By an act of the 14th of Charles II. (1674), the number of founders of letters for the kingdom was again restrained to four, and the number of printers was limited to twenty. This act, however, was only provisional, and appears to have never been carried into effect. The demand for knowledge was so general that four founders and twenty printers were inadequate to the supply. Printing type was imported from Holland until some time after the death of Queen Anne.

In 1678, the year of the so-called "popish plot," several newspapers were published, such as "*The Weekly Visions of the Popish Plot,*" "*Discovery of the Mystery of Iniquity,*" &c. In 1679, "*The True Domestic Intelligence*" had a large circulation among the people, and is said to have contained matters of unusual interest to the public. On the 12th of May, 1680, Roger L'Estrange, who had started a second paper, called "*The Observer,*" exercised his authority as licenser of the press, by issuing "a proclamation for suppressing the printing and publishing unlicensed newsbooks and pamphlets of news, because it has become a common practice for evil-disposed persons to vend to his majesty's people all the idle and malicious reports that they could collect or invent, contrary to law; the continuance whereof would in a short time endanger the peace of the kingdom, the same manifestly tending thereto, as has been declared

by all his majesty's subjects unanimously." The publication of parliamentary proceedings must have been prohibited shortly after the application of the Irish Speaker in 1662; for it appears that a debate arose in the House of Commons, on March 24, 1681, in consequence of which the votes of that body were first printed by authority of parliament. In the year 1682, a specimen of newspaper orthography is found in "The True Protestant Mercury. No. 162":

"ADVERTISEMENT.

"Lost, a flowered silk *Manto* (mantua) Gown, of a sable and Gold Coulor, lined with Black, between *Arnisced Clere* (St. Agnes le Clair) and the White Houses at *Hogden* (Hoxton) on Wednesday last, the 19th instant, about 4 or 5 a clock in the Afternoon. Any one that can give Intelligence of the said Manto Gown to Mr. Blewit's, at the Rose and Crown, in *Loathberry*, shall have 10s. for their pains."

In the "London Gazette" of April 13, 1682, we find the following notice: "Whereas Mr. John Clarke, of London, did rent of Charles Killigrew, Esq., the licensing of all ballad-singers for five years; which time is expired at Lady-day next. These are, therefore, to give notice to all ballad-singers that they take out licenses at the office of the revels, at Whitehall, for singing and selling of ballads and small books, according to an ancient custom. And all persons concerned are hereby desired to take notice of, and to suppress all mountebanks, rope-dancers, prize-players, ballad-singers, and such as make show of motions and strange sights (puppet and peep-shows), that have not a license in red and black letters, under the hand and seal of the said Charles Killigrew, Esq., master of the revels to his majesty." And in particular it requires them to suppress two, one of them being "Thomas Teats, mountebank," who have no license, "that they may be proceeded against according to law." Pepys, in his diary, February 13, 1667-8, states that "Killigrew hath a fee out of the wardrobe for cap and bells, under the title of the king's fool or jester; and may revile or jeer anybody, the greatest person, without offence, by the privilege of his place." The office of Master of the Revels was created under Henry VIII., in 1546.

Advertisements, as now published, were not general in England until the beginning of the eighteenth century. The charge for inserting advertisements (then untaxed) we learn from the "Jockey's Intelligencer," 1683, to be "a shilling for a horse or coach, for notification, and sixpence for renewing." In the "Observator Reformed," of the same

year, it is announced that advertisements of *eight lines* are inserted for one shilling. In the "London Gazette" of October 1, 1683, we find the following: "These are to give notice that the jewels of his late royal highness Prince Rupert, have been particularly valued and appraised by Mr. Isaac Legouch, Mr. Christopher Rosse, and Mr. Richard Beauvoir, jewellers, the whole amounting to twenty thousand pounds, and will be sold by way of lottery, each lot to be five pounds. The biggest prize will be a great pearl necklace, valued at 8,000*l.*, and none less than 100*l.* A printed particular of the said appraisement, with their divisions into lots, will be delivered gratis, by Mr. Francis Child, at Templebar, London, into whose hands such as are willing to be adventurers are desired to pay their money, on or before the first day of November next. As soon as the whole sum is paid in, a short day will be appointed (which, it is hoped, will be before Christmas) and notified in the 'Gazette,' for the drawing thereof, which will be done in his majesty's presence, who is pleased to declare, that *he himself will see all the prizes put in amongst the blanks*, and that the whole will be managed with equity and fairness, nothing being intended but the sale of the said jewels at a moderate value. And it is further notified, for the satisfaction of all as shall be adventurers, that the said Mr. Child shall and will stand obliged to each of them for their several adventures. And that each a lventurer shall receive their money back if the said lottery be not drawn and finished before the first day of February next." In the "Gazette" of a later date, we read that "the king will probably, to-morrow, in the Banquetting-house, see all the blanks told over, that they may not exceed their number, and that the papers on which the prizes are to be written shall be rolled up in his presence; and that a child, appointed either by his majesty or the adventurers, shall draw the prizes."

On February 6th, 1685, King Charles II. died, at the age of 54, and was succeeded by his brother, James II. During the reign of the latter, the licensers of the press exercised almost unlimited authority, and the imprimatur, "Let it be printed," was much used at this time. In Morpew's "Country Gentleman's Courant," a newspaper published in 1685, is a notice from the editor, wherein he states that, "seeing promotion of trade is a matter that ought to be encouraged, the price of advertisements is *advanced to 2*d.* per line.*"

Joseph Moxon, a mathematical instrument maker, and also a letter-cutter by trade, in his work, published in 1686, states that the number of founders and printers had grown so great, that "the operators had found it necessary to divide it into the several trades of the master-printer, the letter-cutter, the letter-caster, the letter-dresser, the compositor, the corrector, the press-man, the ink-maker, besides several other trades which they take into their assistance, as the smith, the joiner, &c." This division in labor indicates that the art of printing was then making rapid progress towards perfection. Letter-cutting at that time was an art which was only known to those who had served a regular apprenticeship in that particular branch.

On the 21st of May, 1685, James II. issued an order to the Stationers' Company, through the censor of the press, Sir Roger L'Estrange, in which, after adverting to the scandalous and intolerable licentiousness of the press, he declared to be his royal command :

1. "That all books of and concerning the common laws of the realm are to be licensed by the lord chancellor, the lord keeper of the great seal of England, the lord chief-justices, chief baron, or one or more of them, or by their or one or more of their appointments.

2. "That all books of history, and books concerning the state of the realm, or other books concerning any affairs of state or history whatsoever, are to be licensed by his majesty's principal secretaries of state, for the time being, or one of them, or by their or one of their appointments.

3. "That all books concerning heraldry, titles of honour and arms, or otherwise concerning the office of earl-marshal, are to be licensed by the earl-marshal for the time being, or by one of his appointment.

4. "That all books of divinity, physic, philosophy, arts, and sciences, be licensed and allowed by the archbishop of Canterbury, the bishop of London for the time being, or by one or more of their appointments, or by either of the chancellors or vice-chancellors of the universities for the time being; the said chancellors and vice-chancellors, however, only having the power to license such books as are to be imprinted or reprinted within the limits of the said universities respectively, but not in London or elsewhere.

5. "That with respect to such miscellaneous books and papers as shall not properly fall under any of the above, they be subjected to the censure of the surveyor of the press for the time being, or such of his deputies as shall by him, the said surveyor, be thereunto authorized and appointed."

The Stationers' Company were commanded to see this order strictly carried into effect, and to take especial care that no book should be entered or published at their hall without such license being first obtained.

In the "London Gazette" of May 17, 1688, we find that, besides the lottery at the Vere-street theatre, "Ogilby, the

better to carry on his *Britannia*, had a lottery of books at Garraway's Coffee-house, in 'Change Alley."

On the 13th of February, 1688, the Prince and Princess of Orange were declared King and Queen of England. In Randel Holme's "*Storehouse of Armory*," published in 1668, is the following account of the printer's May festival :

"STATIONERS' HALL MAY FEAST.

"The Printers, Journeymen, with the Founders and Ink-makers, have every year a general Feast, which is kept in the Stationers' Hall on or about May Day. It is made by the 4 Stewards, 2 Masters, and 2 Journeymen; and with the Collection of half a Crown a piece of every Guest, the charges of the whole Feast is defrayed.

"About 10 of the Clock in the Morning on the Feast day, the Company invited meet at the place appointed, and from thence go to some Church thereabouts in this following order. First 4 Whiffers (this originally meant 'fifers' or 'pipers,' but in process of time the term was applied to those who went before a procession), by two and two, walking before with white Staves in their Hands, and red and blew Ribbons hung Beltwise upon their Shoulders; these make way for the Company. Then walks the Beadle of the Company of Stationers, with the Companies Staff in his Hand, and Ribbons as afore.

"Then the Minister, whom the Stewards have engaged to Preach the Sermon, and his Reader or Clerk.

"Then the Stewards walk, by two and two, with long white wands in their Hands, and all the rest of the Company follow in like order, till they enter the Church, &c. Service ended, and a Sermon suitable for the occasion finished, they all return to their Hall in the same order, where upon their entrance each Guest delivers his ticket to a person appointed, which gives him admittance; where every one feasts himself with what he likes best, being delighted all the while with Musick, and Songs, &c.

"After Dinner the Ceremony of Electing new Stewards for the next Year begins: then the Stewards withdraw into another Room, and put Garlands of Laurel or Box on their Heads, and white wands in their Hands, and are Ushered out of the withdrawing Room thus:—

"First, the Companies Beadle with his Staff in his Hand, and Musick sounding before him; Then one of the Whiffers with a great Bowl of White wine and Sugar in his right Hand, and his Staff in the left: after him follows the eldest Steward.

"Then another Whiffler as aforesaid, before the second Steward; in like manner another Whiffler before the third; and another before the fourth Steward.

"And thus they walk with Musick sounding before them, three times round the Hall; and, in the fourth round, the first Steward takes the Bowl from his Whiffler, and Drinks to one (whom before he resolved on) by the title of *Mr. Steward Elect*; and taking the Garland off his own Head, puts it on the Steward Elect's Head, at which all the Company clap their Hands in token of Joy. Then the present Steward takes out the Steward Elect, and Walks with him, hand in hand, (giving him the right Hand,) behind the three other Stewards, another round the Hall; and in the next round as aforesaid, the second Steward drinks to another with the same Ceremony as the first did; and so the third, and so the fourth. And then all walk one round more, hand in hand, about the Hall, that the Company may take Notice of the Stewards Elect: and so ends the Ceremony of the Day."

On April 11, 1689, the Prince of Orange and his wife the Princess Mary, daughter of James II., were crowned at London and filled the throne of her exiled father, who was thus utterly cashiered and excluded. After the Revolution, the business of printing rapidly increased, by reason of the demands for sheets of intelligence or news, as well as for a better class of literary productions. The first daily paper took the popular title of "The Orange Intelligencer." Sir John Harrington's translation of "Orlando Furioso," printed in 1690, was the first English work in which copper-plates were used. From this time the use of wood-cuts declined in England.

The paper of the seventeenth century was made of rags, as it is at the present day. Before the Revolution, there was hardly any other paper made in England than brown; but the war with France ensuing, and duties being laid from time to time on foreign paper, the English manufacturers in 1690 began to make white paper fit for writing and printing. It is said that this improvement upon their former manufactures produced a saving to England of one hundred thousand pounds annually, which had been paid to France for paper alone. On the 7th of November, 1693, a bill for laying a stamp-duty of a penny on every number of a periodical publication consisting of a whole sheet, and of a half-penny on a half-sheet, was passed by the House of Commons. Whilst this law was in dependence, there was a tract published, entitled "Reasons humbly offered to the Parliament on behalf of several Persons concerned in Paper-making, Printing, and Publishing the Half-penny Newspapers." From this tract it appears that there was then in London *five* printers (master-printers) engaged in these cheap periodical publications, which are spoken of as one of recent origin. The quantity of paper consumed is estimated, in round numbers, to be at least twenty thousand reams per year. Each of the five printers, it is stated, "pays 9s. per week duty to his Majesty, over and besides 1s. for every advertisement therein inserted, so that, by a like computation, each printer of the said half-penny newspapers pays *communibus annis* to the king the sum of about 60*l.*, besides what the paper-maker pays.

Another objection to the stamp-duty was: "For that the said newspapers have been always a whole sheet and a half, and sold for one half-penny to the poorer sort of people, who are purchasers of it by reason of its cheapness, to divert

themselves, and also to allure herewith their young children, and entice them to reading; and should a duty of three half-pence be laid upon these mean newspapers (which, by reason of the coarseness of the paper, the generality of gentlemen are above conversing with), it would utterly extinguish and suppress the same." It is added, that hundreds of persons and families get their bread by selling the publications in question. Many blind persons are stated to be thus employed, and "divers of them," says the account, "who are industrious, and have but a penny or three half-pence for a stock to begin with in a morning, will, before night, advance it to eighteen-pence or two shillings, which greatly tends to the comfortable support of such miserable, poor, and blind creatures, who sell them about the streets." This act was again enforced in the reign of Queen Anne, 1712, and led to the discontinuance of the "Spectator."

During the Revolution in England, licenses for the press were done away with, but the full liberty was not given to the press until 1694, when every restraint was removed by the firm and decisive tone of the Commons. The publishers of newspapers at this time seem to have been greatly in need of intelligence and matters of interest to fill their sheets, small as they were. A few, however, got over the difficulty in a very simple and ingenious manner. Thus, the "Flying Post," in 1695, announces, that "if any gentleman has a mind to oblige his country friend or correspondent with the account of public affairs, he may have it for 2d., of I. Salisbury, at the Rising Sun in Cornhill, on a sheet of fine paper; *half of which being blank*, he may thereon write his own private business, or the material news of the day." And, again, "Dawker's News Letter" states—"This letter will be done up on good writing-paper, and blank space left, that any gentleman may write his own private business. It will be useful to improve the younger sort in writing a curious hand." Another publisher had recourse to a different expedient for filling his sheet. Whenever there was a dearth of news, he printed on the blank part a portion of the Bible; and, in this way, is said to have actually gone through the whole of the New Testament, and the greater part of the Psalms of David. From an advertisement in a weekly paper, called the "Athenian Gazette," February 8, 1696, it appears that the coffee-houses in London had then, exclusive of votes of parliament, nine newspapers every week; but there seems not to have been, in 1696, one daily newspaper.

In 1696, a bill was passed by parliament for making good the rest of the coinage, &c., by means of a duty upon paper. By a tract, entitled "The Case of the Paper Traders," published whilst the bill was before the house, we learn that "there is a bill now depending for laying 25*l.* per cent. upon paper, parchment, vellum, and pasteboard to be imported; 20*l.* per cent. on English paper, &c.; and 17*l.* 10*s.* per cent. on those goods now (in merchants' and others' hands) to be sold." These duties, it seems, would not produce more than eighteen thousand pounds per annum. It appears that there were only one hundred paper mills in England, and all but one were making brown paper and the coarsest kind of white, and these it is stated "do not one with another, annually make 200*l.* worth." One company, in particular, made eight thousand pounds worth per annum.

Altogether, the value of paper made in England at this time was only about twenty-eight thousand pounds. "The vellum, parchment, and pasteboard made and expended here the last year (1695) was not above 10,000*l.*," and "the paper last year imported was not worth 40,000*l.* (and much less will be brought in if this duty be laid)". It is calculated the proposed duty would bring in seventeen thousand six hundred pounds, from which is to be deducted the expenses of the collection. A trifle more it is admitted may be obtained from the stocks in hand, the project of taxing which, however, is characterized as a most extraordinary one, and as wholly without precedent. It would not pay expenses to collect the tax from the small dealers in the country. Of merchants and wholesale dealers, from whom alone it would be practicable to collect the duty, the number is stated not to exceed thirty-five, who might, in all, have goods on hand to the value of about sixteen thousand pounds. Upon that amount of stock the tax would be only two thousand eight hundred pounds. "The paper-makers," the statement goes on to say, "are generally very poor, and now can scarce maintain their families; but when (as by this bill required) they must pay, or give security for, the duty before they sell, this manufacture will be so much lessened that most of the mills must be ruined, and the makers, with their families, become a charge to their respective parishes. The same may be said of the parchment makers. * * * The printing trade now consumes the greatest part of the paper; but if this duty be laid, the consumption will not be half what it is

now; few books but that are of absolute necessity being now printed, by reason of the present advance upon paper; much less will they be able to bear the charge upon the press when so great a duty shall be laid upon the commodity. This will ruin some hundreds of booksellers, bookbinders, and printers, and others depending on that trade."

Under this act every sheet of paper that was sold to the public bore on it the king's stamp, and offices for the retail of paper thus stamped were opened in all parts of the kingdom by commissioners appointed to see the act carried into effect. The commissioners obtained their supplies of paper by contracting with certain manufacturers. This gave great umbrage to the Company of Stationers, who complained of this opposition as unfair on the part of the government; the commissioners, on the other hand, vindicated the system on the ground of the reduced price at which the public were supplied with paper at their establishments. The latter could afford to sell cheaper than others, as they required no profits. Their capital was public capital, and they were salaried by the public. This interference in the paper trade was decidedly unfair. The two principal offices of the commissioners were at Lincoln's Inn and Southwark.

In another tract, entitled "Reasons humbly offered to the Honourable House of Commons against laying a further Duty upon Paper," the actual produce of the duties imposed is stated. This seems to have been written some time after the act of 1696 had transpired, and when a bill had been brought into parliament for imposing certain new duties upon paper. This bill is, probably, that which became a law on the 5th of July, 1698, under the title of "An Act for paying to His Majesty, his heirs and successors, further duties upon stamped vellum, parchment, and paper." The writers of the "Reasons" state that "the whole produce of the paper duty from March 1, 1696, to March 1, 1698, came but to 16,848*l.* 10*s.* 9*d.*, about one-third whereof was collected from the stock which was in the hands of tradesmen before and at the time the act was passed." By this new act the government intended to lay a duty of thirty per cent. on French paper, in lieu of that of twenty-five per cent. which had expired. If this duty shall be imposed, it is contended, French paper will cost four shillings per ream; and it is added, "note that two-thirds of the paper used for printing and common writing, which is rated in our books of rates at 4*s.* 6*d.* per ream, doth cost beyond the sea no more

than 1s. 3d. to 3s. per ream." Although the high duty on foreign paper in general had expired, it was still very dear, and "the dearness of paper," states the "Reasons," "is the only occasion that a great number of voluminous and useful books, in many sciences, now ready for the press, cannot be printed; to the great discouragement of trade, as well as of industry and learning, very many of the profession being forced to employ themselves on trivial pamphlets."

The "Post Boy," of January 3d, 1698, contains an account of the strife between the "New Lotteries and the Royal Oak." The "Protestant Mercury" of October 20, 1698, speaking of the lottery drawn at the Dorset-garden theatre, says "its fairness (was said) to give universal content to all that were concerned." The "Mercurius Caledonius," published at Edinburgh in 1661, was succeeded by the "Kingdom's Intelligencer," the duration of which is said to have been at least seven years. After this the Scotch had only reprints of English newspapers until 1699, when the "Edinburgh Gazette" was established. Printing was known in Ireland as early as 1551, when a book of black letter was printed at Dublin, but very little printing was done in that country until the year 1700.*

The law in force for printers, during the seventeenth century, was that which was passed in the twenty-fifth of Henry VIII., which, while it protected the native printers, prevented them from imposing upon the public at large. This act was entitled "An Act for Printers and Binders of Books." The fourth and last section is as follows:

"Provided always, and be it enacted by the authority aforesaid, That if any of the said printers or sellers of printed books, inhabiting within this realm, at any time hereafter happen in such wise to inbalance or increase the prices of any such printed books, in sale or binding, at too high and unreasonable prices, in such wise as complaint be made thereof unto the king's highness, or unto the lord chancellor, lord treasurer, or any of the chief justices of the one bench or of the other; that the same lord chancellor, lord treasurer, and two chief justices, or two or any of them, shall have power and authority to enquire thereof, as well by the oaths of twelve honest and discreet persons, as otherwise by due examination by their discretions. And after the same inbalance and increasing of the said prices of the said books and binding, shall be so found by the said twelve men, or otherwise by examination of the said lord chancellor, lord treasurer, and justices, or two of them; and

* The first Irish newspaper which the British government allowed to be published was entitled *Pue's Occurrences*. It was commenced in Dublin in 1698; but as soon as it took the liberty to express any opinion about the government which was not of an appreciative character, it was immediately suppressed and both the editors and printers were imprisoned for high treason.

then the same lord chancellor, lord treasurer, and justices, at the least from time to time, shall have power and authority to reform and redress such inhancing of the prices of printed books from time to time by their discretions, and to limit prices as well of the books as for the binding of them; and, moreover, that the offender or offenders thereof, being convict by the examination of the same lord chancellor, lord treasurer, and justices, or two of them, or otherwise, shall lose and forfeit for every book by them sold, whereof the price shall be inhanced for the book or the binding thereof, three shillings, four pence; the one-half thereof shall be to the king's highness, and the other half to the parties grieved, that will complain upon the same in manner and form before rehearsed."

A similar act was passed in 8 Anne, cap. 19, § 4, increasing the penalty to five pounds for every book sold at higher prices than justices, &c., should fix it. The latter was repealed by the 12 Geo. II., cap. 36, § 3, and the law of Henry VIII. still remains the law of England.

The compositor's work in the seventeenth century was difficult. The *frame* at which he sat consisted of two *cases*, each divided into equal compartments. Experience has since taught that some letters are more used than others, and has led to an entirely different arrangement of the cases. One case now being occupied by Roman, the Italic letters, and those which are most in use, are brought close to the hand of the compositor. By this means a great deal of useless labour is saved, and time gained.

At the close of the seventh century, in a book published by J. Barrow, entitled "Dictionarium Polygraphicum," we find that "Printing is represented in Painting, &c., by a woman in a white chequered habit, with the letters of the alphabet on it, holding a trumpet in one hand, round which is a scroll inscribed *Ubique*, and, in the other, the semper-vive, or house-leak, with the word *Semper*; a printing press by her, with some implements. "White shows the impression should be pure and correct; chequered, to signify the little boxes for the letters; *ubique*, signifies its being famous everywhere."

- ART. III.—1. *Report of the Council of Hygiene and Public Health of the Citizens' Association of New York, upon the Sanitary Condition of the City.* Published with an Introductory Statement, by order of the Council of the Citizens' Association. New York, 1865.
2. *Second Annual Report of the New York Metropolitan District Board of Health.* New York, 1868.
3. *Contributions to Vital Statistics; and a Development of the Rate of Mortality and the Laws of Sickness.* By F. G. NEISON. London.
4. *Treatise on the Sanitary Management and Utilization of Sewage.* By WM. MENZIES, Deputy Surveyor of Windsor Forest. London, 1865.
5. *Report of the Epidemiological Society.* Published by Parliament. 1853.

THE epidemic clouds which have been hanging for the past few years over Europe and America, have forced public attention to the necessity of a thorough and well-organized attempt to baffle the threatened invasion, and to deal with the question of public health as of the last importance. Hurried and imperfect precautions, taken in the midst of the calamity, and confined to the few whose circumstances allowed it, have too often marked all efforts to stay the ravages of pestilence. Poverty and disease were deemed so closely linked together that the golden talisman was reputed as powerful to control the one as to ward off the inconveniences of the other. But, it is now well understood that, when the wretched denizen of St. Giles' or the Five Points is struck down by the fever or the plague, the wealthy tenant of a West End or a Murray Hill palace is not free from the danger of taint. In virtue of the law of the equal diffusion of gases the poison-loaded feter of typhus haunts can be quickly borne to the favoured abodes of fortune, and the last breath exhaled by the victim of contagious disease may be next breathed in the drawing-room or the opera house. The moment men became convinced of this, the common danger created a common interest, and it is now a matter of greater anxiety to the man of intelligence, who lives according to the requirements of hygiene, that the sanitary condition of the poor be raised to a proper standard than it is to the poor themselves, "who," as Ruskin says,

"still insist on their right to helpless death." Here the first step was half the journey, and whoever takes pains to study the work accomplished within the few years since this agitation commenced, by the Health Boards of London, Paris, New York, Berlin, and Vienna, will take hope that the apotheosis of Hygeia is not far off. But, in this matter, as in nearly every other, a few lessons may be gathered from history, which will teach how dangers are to be avoided, and suggest reforms still needed.

In the earliest times a diminished standard of public health and the development of maladies unknown in sparsely-populated regions were observed as a result of the conflux of large bodies of men in towns and cities, and measures were adopted to obviate the evil wherever men met to form themselves into communities. We know that the strictest sanitary ordinances were enjoined on the Hebrews in their encampments, and their legislator has minutely recorded the manner in which they were directed to observe cleanliness in their persons and in their habitations. And from Homer we learn that, on the cessation of the pestilence which the anger of Apollo had provoked among the Greek troops, Agamemnon gave orders for a general cleansing of the forces, and that the cleansings should be cast into the sea.* The order is a good evidence of the great importance attached, even at that early period, to the efficacy of sanitary measures, and their recognised superiority over libations and holocausts.† It is a pity the poet did not give us a detailed account of this cleansing process, since we should, mayhap, find that many of our present camp regulations had been forestalled in the tented fields around Troy. Whatever the nature of it may have been, we may fairly conclude

* Λαοὶς δ' Ἀτρεΐδης ἀπολυμαίνεσθαι ἄνωγεν
Οἱ δ' ἀπελυμαίνοντο καὶ εἰς ἅλα λύματ' ἐβάλλον.—*Iliad*, lib. I., 313-4.

† The action of the Argive leader in ordering a purification of the forces, previous to libations and burnt offerings of bulls and goats, brings forcibly to mind the reply of Lord Palmerston, then Prime Minister of England, when asked to proclaim a public fast in anticipation of an approaching visitation of the cholera. "The best course," said he, "which the people of this country can pursue to deserve that the further progress of the cholera should be stayed, will be to employ the interval that will elapse between the present time and the beginning of next Spring in planning and executing measures by which those portions of their towns and cities which are inhabited by the poorest classes, and which, from the nature of things, must most need purification and improvement, may be freed from those causes and sources of contagion, which, if allowed to remain, will probably breed pestilence and be fruitful in death, in spite of all the prayers and fastings of a united, but inactive people."—*Buckle's History of Civilization in England*, vol. ii, p. 467.

that it was both thorough and effective, since the offscourings were not allowed to remain as a source of pollution in the neighbourhood, but were all cast into the sea.

Commentators on 'passages of the ancient authors, relating to religious sacrifices and ceremonies, have imagined that they saw in many of them excellent sanitary regulations, which rulers endeavoured to enforce more effectually under the guise of religion. Thus Lycurgus prescribed the immersion of new-born babes in a bath of cold wine, ostensibly as a religious ceremony, but, in reality, that the shock might determine against sickly infants. So, likewise, abstinence from the flesh of certain animals which were deemed unhealthy, was effectually enforced by presenting those animals to the vulgar mind as objects of adoration. In this way the Egyptian priests restrained the people from using the flesh of the shrew mouse, the ibis, the cat, and the hippopotamus.* But not till large cities sprang up in the plains of Mesopotamia, till the wealth of the Assyrian empire built Nineveh amid the sands, and Babylon rose with a splendour which has immortalized its name, did the most serious inconveniences arise from these compact centres of population, and not till then were permanent means adopted to combat influences injurious to the public health. Time has so nearly obliterated all vestiges of those ancient cities, that it is with difficulty we can detect imperfect evidences of sanitary measures, and we are still in doubt whether these were the result of accident or design. Layard tells us that the houses of Nineveh were built in the midst of gardens, separated from each other by spacious intervals, and that the plain around the city was a network of canals. In these two circumstances we find the principal condition of a sound sanitary system—fresh air and ventilation with a plentiful supply of water—and, we may add, facilities for removing the impurities of a crowded population. But we must come down to much later times before we meet with signs of precautionary measures which were evidently dictated by a regard for the public weal, and which were the forerunners of our modern sanitary code.

The gymnasia of Grecian cities, first established for the instruction of youth in manly exercises, speedily assumed a higher function before the law, and were regarded as health-

* *Porphyr. de Abstinencia*, 4. 9.

giving founts, whence fresh stamina might be imparted to the blood and sinew of the country. To increase their utility for this end, baths were added, porticoes constructed, and public libraries were stationed in and around the gymnasia, so that young and old, studious and indolent, might be called forth from the pent-up atmosphere of their homes, to breathe the fresh air which circulated freely in those colonnaded shapes. How necessary it was to hold out such inducements to the people to quit their badly-constructed houses, and spend the greater part of their lives abroad, may be understood by a glance at the peculiar architecture of Grecian abodes.

On either side of the vestibule and atrium were *cul de sac* rooms, into which no fresh air could enter, and from which the foul air could not escape, except by the slow process of diffusion, so that the inmates were obliged to breathe again and again the constantly vitiated exhalations of their own bodies. But the outdoor attractions readily drew the pleasure-seeking Athenian from these abodes of disease, and causing him to abandon the discomforts of a cheerless home, gave him instead the light of a cloudless sky, pure air to his body, and to his mind the delights of song, oratory, and music. Unlike our modern town populations, the ancients lived outdoors; they ate, they laughed, they chatted, and slept with no roof over them but the blue vault, and only when stress of weather compelled them did they seek the shelter of their homes. Therein they enjoyed an immense advantage over the masses of our town inhabitants, who never seek the open air but when labour calls them forth. How much better would it be, for this reason, if those huge piles of tenant-houses, where close-packed masses of humanity inhale the foul poison of *ochlesis*, or overcrowding, were razed to the ground, and their denizens forced to live in the open air, with the privilege of going under shelter only when cold or rain compelled them. For a while, no doubt, grievous inconveniences would arise, but in the end we should have a hardier and healthier generation. Nevertheless, Grecian cities laboured under many serious drawbacks in a sanitary point of view, and in no respect, perhaps, more than in the absence of effective systems of drainage. So far as we know, the Greeks had no underground sewers to remove accumulating filth, otherwise we should find remains similar to the Roman *cloaca*. To this circumstance, coupled with the faulty construction of Grecian houses, may be traced

the great plague of Athens, which cut off the illustrious Pericles, and the harrowing details of which have been so graphically described by the pen of Thucydides. In view of the imperfect ventilation of Grecian houses, the ignorance of glass and the use of horn in its stead, proved, though it may seem paradoxical to say so, a real benefit, and a source of much sanitary good, since the dingy medium through which the light thus passed entailed the necessity of open doors and windows much more than if glass had been in use, and thus ensured an admission of fresh air, even against the will of the tenants. Moreover, as the ancients were not acquainted with the so-called modern improvements in dwellings, their outgoings from the polluted air of their homes were much more frequent, and by submitting to a few inconveniences, which to us would be unbearable, they often gained the priceless boon of health. But so faithfully did the Romans reproduce whatever good they found in Grecian institutions, that we may find in the description of Roman sanitary provisions, whatever the Greeks had previously accomplished.

The experience of all times proves that the first condition to be consulted in the building of a town or city is the establishment of some means by which the filth and impurities, resulting from the ceaseless decay of organic matters, may be removed; and so we find that, when Rome began to assume the dimensions of a respectable town, about two hundred years after its foundation, the enterprise of its king built a sewer which has been the theme of admiration to the present time, and which yet, after a lapse of nearly three thousand years, is the common outlet for the impurities of the city. Pliny calls this the most wonderful work of Rome, a navigable city, and says that mountains were dug from the bowels of the earth in its construction. Of its vast size we may form an idea from the statement of Procopius, that a man on horseback, or a load of hay drawn by two horses, could easily pass through. Subsequent rulers perfected this splendid sewer by extending a very close network of drains through the city, all of which connected with the *cloaca maxima*. A very steep incline was given to these subsidiary sewers, so that at night, when the din and tumult of the city was hushed, the murmur of the drainage at every street corner could be distinctly heard, and no sedimentary deposit could obstruct the free discharge of their contents. The abundance of water with which the city was supplied al-

lowed the frequent flushing of the sewers, and often when the impurities were cleansed away watermen pulled their boats hundreds of feet into the *cloaca maxima*. The efficiency of these outlets for filth can be best understood by comparing the salubrity of the Roman climate in former times with what we find it to-day * * * The *mal'aria*, which is the curse of modern Rome, was then unknown, and the Campus Martius, which constitutes the principal site of the present city, was as healthy as the slopes of the Aventine.

There can be no doubt that the healthiness of ancient Rome, when a population of at least two millions swarmed within its limits, is attributable, in a great measure, to the thoroughness of its sewers, which swept away the vile refuse that, two thousand years later, is often allowed to fester and rot in the streets of cities. Some deny the great antiquity of the *cloaca maxima* on the ground that the arch was unknown to old Etruscan architecture, but the statements of Livy and Suetonius are too positive to admit such a doubt, and the authority of the most reliable paleologists, among whom may be mentioned Niebuhr, refers this work to the reign of Tarquin the Proud.*

But the importance attached by the Romans to a complete system of sewerage, as a fundamental condition for the maintenance of public health, may be still better illustrated by the means they employed to drain the Colosseum and to preserve cleanliness in its interior. This vast enclosure comprised within its walls an area of two hundred and forty-nine thousand eight hundred and forty superficial feet, and was capable of accommodating eighty thousand persons constantly assembled to witness the games. Here were, eating and sleeping for days within a crowded amphitheatre, thousands whose lives would have been fearfully endangered were it not for the admirable and effective systems of drainage and ventilation employed.† Next to an efficient system

* Strabo, 235; Livy, lib. 1, cap. 38; Rome in the Nineteenth Century, vol. 1, p. 249; Burgess, Antiquities of Rome, vol. 2, p. 223.

† In order to understand the means used for this purpose it would be necessary to include a detailed account of the complex architecture of the Colosseum. We refer the curious to the evidence given by Ed. Cresy, C. E., before the Metropolitan Sanitary Commission of London (Pp. 333, 335, First Report, 1847). Suffice it to say that the provision was admirable in both respects, for constant currents of air floated through the enclosure, and so decided an inclination was given to the drains that all refuse matter was effectually swept away. As an evidence of the materials used in the construction of the sewers, Mr. Chadwick, the great Sanitary Reformer of London, told the Commissioners of Sewers that

of drainage, or rather of equal importance with it, may be mentioned the means by which a copious supply of good water is furnished. In this respect Rome was better off than any city before or since. According to Procopius, no less than fourteen, and according to Victor, no less than twenty, aqueducts poured their crystal floods into the city of Rome at the rate of five million hogsheads daily. These aqueducts conveyed water from a distance of thirty, forty, sixty, and even one hundred miles, and some supplied the baths and the common people, while others were reserved for the use of the rich and noble. Many suppose that those costly structures and those solid tiers of arches, which rose in successive arcades, are an evidence that the ancients were not acquainted with the simple law of hydrostatics that water always rises to the level of its source; but, apart from the consideration that numberless illustrations of this law fall daily under observation, we have the express words of Pliny asserting it, and surely we may, without imputing this gross ignorance to the Romans, find a motive for those grand and expensive works in the inordinate love of display which prompted Vespasian to build the Colosseum.* These aqueducts were constructed in such manner that the water was freed from impurities in its course, and reached the reservoirs pellucid as glass. For this purpose cavities were hollowed out at intervals in the course of the aqueduct, and here the water was allowed to rest till the mud settled at the bottom. Pliny, in his description of these magnificent works, thus sums up: "If we consider the incredible quantity of water brought to Rome for the uses of the public, for fountains, baths, fish ponds, private houses, garden and country seats; if we represent to ourselves the arches constructed at a great expense, and carried on through a long distance; mountains levelled, rocks cut through, and valleys filled up, it must be acknowledged that there is nothing in the whole world more wonderful."†

he had received from a friend in Zurich a specimen of the same earthenware he was then recommending for sewers. It had been laid down by the Romans, and worked till recent times, under five hundred feet of pressure.

* The same truth is demonstrated by the use of the inverted syphon in the Claudian aqueduct of Lyons. Moreover, in the Museum of Arles is to be seen a length of lead pipe, fished up from the Rhone, and the name of the Roman plumber who made it marked at every joining. It is supposed to have been used to convey water across the Rhone from Trinquetaillade to Arles.—*Pliny, Natural History*, lib. 36, cap. 15.

† For instance, the aqueduct at Vico Vazo, beyond Tivoli, in which a canal, four feet by five, pierces the solid rock for more than a mile.—*Montfaucon's Antiquities*.

Though this eulogium savours of national pride, it is scarcely an over-estimate of one of the most valuable sanitary conditions ever devised. Next to supplying the requirements of domestic uses, the most important purpose the Roman aqueducts subserved was the provision of water for the public baths. Whoever has read a description of a Roman bath, cannot fail to have been impressed with the immense superiority the Romans possessed over us in this respect. All that a refined taste, with unlimited resources, could accomplish, was here combined; and while luxury sought new means of gratification, the public health was benefited to a wonderful extent. Here, while the body felt the refreshing shower, or languished in tepid drowsiness—while the limbs were anointed with perfumed unguents, or the skin glowed beneath the rapid friction of the strigil—the eye drank in delight from numerous paintings and statues by the best masters, and the ears were charmed by strains of sweet music; here poets and philosophers met to declaim and debate, and found ready listeners in the proudest Roman of equestrian rank as in the meanest of the plebeian rabble. Indeed, this democratic feature of the public baths constitutes their chief hygienic advantage, for, had admittance to them been refused the poor, their sanitary function would have completely failed. Ammianus, as quoted by Gibbon, says: "The meanest Roman could purchase, for a small copper coin, a luxury which the wealth of an Eastern prince could not obtain;" and Seneca, describing the bath of Scipio says: "A man thinks himself poor and mean, unless the walls are decorated with large and precious embossments, unless Alexandrian marble is pointed and inlaid with Numidian rough-cast; unless a rich and curiously variegated plastering is spread upon them in picturesque; unless the roof is covered with glass-work; unless the Thasian stone, once reckoned a scarce and curious ornament, even in some temples, now encompass the pools in which we bathe our bodies when enfeebled by fatigue after some trifling sport; in short, unless the water is conveyed in silver spouts. *I am speaking, as yet, of common baths.*" * * *

To such palaces were the poorest inhabitants of Rome admitted on the payment of a trifling sum—Horace says a farthing, and Juvenal says, children at half price—and thither they resorted at all hours of the day, exchanging the poisoned atmosphere of their tenements for the fresh air, the cleansing and refreshing waters of the thermæ. How strikingly this

contrasts with the habits of the modern poor, whose miserable bodies know not the touch of water, nor the rub of a towel, from the day of their birth till they are laid in their graves! The Roman bathers went through the same processes as the Turks and Russians of the present time; they were showered, sweated, chilled, kneaded, rubbed, dried, and anointed; they then played at tennis or quoits, and went forth fit soldiers to be enrolled in the invincible ranks of Marius, Sulla, or Scipio. The flesh scrapers, used for removing the filth impacted in the pores of the skin, served a very important sanitary purpose, for physiologists agree that next to a sound condition of the lungs and kidneys, a healthy state of the skin is essential for the removal of the impurities of the body. Indeed, of this there can be no doubt, when we reflect on the number of pores in the skin, and the vast deal of exhalations they can give off when free and unobstructed. The strigil not only accomplished this, but stimulated capillary circulation, and diffused a healthful glow over the surface of the body.

Of the importance which the Romans attached to bathing, the magnificent remains of the Roman *thermæ* still bear ample testimony. The baths of Titus, Caracalla, and Diocletian are, even in their ruins, proud monuments of Roman pomp and cleanliness, and the latter from purifying the body now performs a cleansing process for the soul, having been converted into a church by Michael Angelo. The Roman houses were certainly not model tenements, for the want of a thorough communication between the rooms prevented a free distribution of air in the houses of the poor, and the ceilings were so low that the inmates were barely able to stand erect. The streets, too, especially in the lower quarters of the city, were narrow and tortuous, and the air circulated through them with difficulty. These evils were greatly aggravated during the empire, when the luxury and extravagance of the court and the nobles increased the number of the poor, and rendered their poverty more abject. Then towering piles of dwellings sprang up, mushroom-like, and polluted the air with the offscourings of their countless denizens, the people lost self-respect and became fond of filth, the Romans lost their distinctive character, and the seal of doom was already upon their city. Of these evils Juvenal frequently complains. He thus speaks of the excessive height of the houses :*

* Augustus had ordained that no house should exceed seventy feet, but, as we see, the ordinance was neglected.

"And first behold the mansion's towering size,
Where floors on floors to the tenth story rise."—Sat., III.

And again of their insecurity :

"For thus the stewards patch the riven wall,
Thus prop the mansion tottering to its fall ;
Then bid the tenant court secure repose,
While the pile nods to every blast that blows."—Ibid.

But these unwholesome influences did not exist in the days of the Republic and the first emperors, for the numerous wars for which sturdy soldiers were required induced the republican rulers and the early emperors to look on the citizens of the State as children who owed rights to their mother, and to whom, in turn, belonged all the advantages which her proud position could bestow. Hence, the government took the liveliest interest in their comfort and well-being, and though, pagan-like, it cared little for the sick and deformed, yet no modern nation has taken greater pains to promote the health and happiness of its physically-sound citizens, than the Roman Republic and the early Roman Empire.

It is true that, now-a-days, many admirable institutions, unknown to the Romans, exist, by which two most important adjuncts to hygiene may be gained, viz., education and religion ; yet when we see countless numbers of human beings a prey to demoralizing and unhealthy influences, we must admit that these two instruments of good have failed in their sanitary mission. The State cares no longer whether thousands upon thousands breathe a poisoned air in abodes of death, yecept tenant-houses ; it considers that its duty towards its children is discharged when it sees that the laws are enforced. But Rome, knowing that her citizens were the stay of her existence, prepared to do battle for her at any moment, felt that, as a condition of self-preservation, she had to provide for their physical well-being, and release them from the operation of all causes prejudicial to a high standard of health. With this view, baths, porticos, campi, and amphitheatres, were constructed, and the proletarians were called forth from their tenements, to share with the proudest patricians the entertainments which the munificence of the State provided.

Evidently the Roman government comprehended the truth that wide-spread depression of spirits arising from poverty and its concomitant train of evils, is the parent of that discontent which in modern times has led to the overthrow of so many

States, while it is at the same time the prolific source of disease and physical degeneracy. And though the fastidious tastes of modern days might find fault with the gross *pabulum* offered to the mind in the gladiatorial contests and the exhibitions of the amphitheatre; yet, so far as they inspired cheerfulness and contentment, their hygienic mission was accomplished. One modern ruler, at least, has appreciated the same idea; and if we could but know the secrets of Baron Haussman's breast, we should feel assured that the Prefect of the Department of the Seine considers that Paris owes its immunity from epidemic more to its galleries, parks, and gardens, which are free alike to the workman in his *blouse* and to the *grand Seigneur*, than to the exertions of the Sanitary Board. The mind is as liable to disease as the body and where the means of keeping it in a healthful condition are neglected, how can bodily well-being be preserved? Music and pleasant scenes, the verdure of the field, the foliage of the grove, crystal sheets of water, the exercises of the gymnasium, the excitement of the course, these are the agents which bring about the *mens sana in corpore sano*, more effectually than tons of chloride of lime.

Hence, special officers were appointed at Rome to provide entertainments for the people; and after the time of the Emperor Claudius, if the theoric fund failed, the Questor was obliged to defray the expenses from his private purse. The wise policy of Rome in this respect has been admired by all, and some sanitary enthusiasts imagined that the Saturnalian festival, during which all work was suspended, and even the *vernæ*, or born slaves, were allowed the same privileges as the citizens, was instituted with the same end. However that be, it is certain that it was a main object with the Roman government, both Republican and Imperial, to elevate the physical condition of even its lowest subjects to the highest standard; and however much we may be disposed to question the means when viewed by the light of Christian morals, still, when we look at the result from the standpoint of hygiene and sanitary ethics, we cannot withhold our admiration.

When the hordes of the North overran the empire, they buried in the general ruin whatever sanitary good the limited knowledge of the Romans had accomplished, and then arose that terrible series of plagues which for many centuries continued to decimate the countries of Europe, and at one time swept away a quarter of the population of the old world.*

* Hecker's History of the Epidemics of the Middle Ages.

In tracing the history of those dreadful calamities, the constant testimony that they were the offspring of ignorance and neglected sanitary precautions affords an instructive lesson. Dr. Hecker, in his well-known history of the epidemics of the middle ages, says that the sweating sickness was a legacy left by the wars of the Roses, and first developed itself in the army of Richmond, worn out by exposure and living in utter disregard of camp regulations. The same author remarks that many of those pestilential visitations were the *sequelæ* of war, and arose as much from popular depression of spirits and universal despondency as from the operation of positively insalubrious causes.

The history of the rise and progress of mediæval towns furnishes an easy explanation of the terrible scourges which ran up the mortality bills to so appalling a figure, and kept the population so low. Neither Paris nor London knew the benefit of an underground sewer, but all refuse matter was cast into shallow drains, which ran along the surface of the streets. In London, especially, the excessive filth filled the air with poisonous emanations, which proved terribly destructive. In many streets there were no pavements, and the circulation of the air was prevented by the projecting eaves of the houses almost meeting at the top, while the intervening space was filled with enormous sign-boards. It was impossible to wade through the mass of filth in midday without a lantern, while the exuvial *sordes* battened in holes and crevices where a gleam of sunlight never entered. Erasmus, in a letter to the physician of Cardinal Wolsey, presents a curious picture of the inside of a London habitation. "The floors," he says, "are commonly of clay, strewed with rushes, which are occasionally renewed, but underneath there lies unmolested an ancient collection of beer, grease, fragments of fish, spittle, the excrements of dogs and cats, and every thing that is nasty;" and we learn elsewhere that even the presence chamber of Elizabeth,* in Greenwich palace, was littered with hay. Later still Macaulay tells us that, "if the most fashionable parts of the capital could be placed before us, such as they were in the reign of Charles II., we should be disgusted by their squalid appearance, and poisoned by their noisome atmosphere. In Covent Garden a filthy and noisy market was held close to the dwellings of the great. Fruit women screamed,

* Heberden's Observations on the Increase and Decrease of Different Diseases.

carters fought, cabbage stalks and rotten apples accumulated in heaps at the thresholds of the Countess of Berkshire and of the Bishop of Durham. * * * St. James' square was a receptacle for all the dead dogs and cats in Westminster."

Nor were the people of other cities better off. Paris, Vienna, and Constantinople gave offence to the eyes and to the nostrils at every step. The air was polluted not alone by the rotting carrion which often lay in ghastly heaps along the unpaved streets, but the atmosphere was loaded with deadly effluvium from the intramural graveyards. This was notoriously the case in London and Paris, where the terrible mortality necessitated the frequent opening of graves, and the carelessness of the diggers, who were amenable to no special law, gave a few shovels-full of earth for interment.* This evil became so aggravated that the neighbourhood of the cemeteries was deserted, and at night they shone at a distance with a brightly luminous phosphorescence. The water, which was for the most part supplied by pumps, was so strongly saturated with the refuse liquids which had been soaked into the ground, that diarrhoeas and dysenteries became epidemic, and the ratio of deaths in proportion to the population was frightful.

The little importance attached to statistical tables has left us entirely in the dark in regard to this proportion during the long period of the middle ages; but, even dating from the time that tables began to be kept, we find enough to assure us that the mortality of the European capitals was almost incredible. Thus we find that in London, in the year 1741, the number of deaths was thirty-two thousand, while in the year 1809, after the population had more than trebled, the number was only sixteen thousand six hundred and eighty. And so in other large cities the mortality, when first ascertained by return bills, was appalling. One in thirteen, and even one in eleven was the average proportion of deaths. Nor need this so much astonish us when we reflect on the intensely insalubrious character of the influences which were preying on the public health. Cellar habitations, utter strangers to the light and air of heaven, swarmed with the bulk of the labouring classes, whose bodies coarse and unassimilable food wore out instead of nourishing, while drunkenness and bestial depravity, aptly imitated from the upper classes, still further

* See Bills of Mortality for London, Metropolitan Board of Health.

enfeebled their frames. Every square foot around them exhaled fetid poison. The sewers were defective, the water smelt rank with the decay of organic matter, fever constantly lurked in the poisoned air, and each change in the weather served to aggravate these abominations, for the rain churned the seething compound of liquid poison, and the sun drew therefrom reeking vapours laden with still more subtle venom. Institutions of charity supported by the State were mere charnel-houses, which but to enter was a boding of death. Here partial starvation was added to the above list of non-sanitary agents, and death reaped a more abundant harvest.

And yet so little did these facts affect public sentiment, that most persons considered a bottle of vinegar, or a perfumed *sachet*, quite sufficient to ward off the approach of the most violent distemper. And so affairs would probably have continued, had not men's attention been aroused by the silent eloquence of figures. These unerring *indices* first told the community that the harvest of death was so great as to threaten the existence of the race, and that the demand for reform was imperative and immediate. We may consider these statistics as the foundation of modern sanitary science, and all the good accomplished by health boards as dependent on the light they furnish. They are the pulse which indicate the character, number, and variety of the agencies sapping the fortress of life. It is through them we diagnose the health of the community, and by them we are enabled to prescribe the requisite treatment. In this respect an entire population is as one individual, subject to a great number and variety of disturbing influences, capable of being differently affected at different times, in different parts, according to the varying condition of surrounding circumstances, and it is only as these circumstances are discovered and appreciated at their proper value that relief can be afforded. The bare record of deaths would be comparatively valueless; it would be as if we were told that a friend was sick, without the disease being mentioned. But when we hear the nature of the disease, its intensity, its duration, its progress, &c., we are at once able to speculate on the result, and determine what remedies to use, and what good may be derived therefrom. All this statistics accomplish for the community, for when the proportion of deaths by different diseases is ascertained, when sex, colour, age, nativity, residence, occupation, and constitution are mentioned with

reference to this proportion, we can investigate the causes determining such a result, and, if we discover them, take measures accordingly.

The more numerous are the subdivisions in statistical records, the more light will sanitarians have to guide them in their operations, just as the more minutely the symptoms of a disease are described, the more readily will the physician detect its presence. To draw forth invaluable treasures we have but to sink our shaft deep into this mine of truth. Every fact discovered is a general law, and, as such, fraught with highly important consequences to every one whom its operation reaches. If, for instance, carefully kept statistics should demonstrate a peculiar connection between stature, complexion, physiognomy, &c., and a tendency to certain maladies, those concerned would at once know how to comport themselves in the presence of circumstances favourable to the development of these, and so would often be indebted to the arduous computations of the statistician for immunity from disease. It is true that such a connection has not yet been established, but who, for all that, can deny its possibility? If the indefatigable efforts of our present head of the Bureau of Vital Statistics were seconded by all the physicians of New York, what a flood of general truths of this nature would flow in upon us!

Florence Nightingale has truly said that "the most minute and practical examination of personal and local conditions is the very foundation of sanitary statistics." Even now important discoveries are being made, and so rapidly that the statistical aspect of sanitary science, from having had no existence a few years ago, has suddenly taken the foremost rank. According to Sir John Herschel we should proceed in our statistical enquiries: "First, by asking distinct, pertinent questions admitting of short and definite answers. Second, by calling for exact statements on all principal points. Third, by pointing out the principal circumstances which should be observed. Fourth, by securing their transmission to a common centre." Another distinguished authority on sanitary matters thus expresses himself with reference to the same subject: "One of the first great objects of sanitary organization should be to watch the death-rate, to watch it not only over a city or a parish, but, in detail, to watch it with due regard to difference of age, sex, place, and circumstance, to watch it from month to month, and even from week to week, to watch it as affected by different diseases,

particularly what are termed epidemic diseases, and such diseases as we have reason to believe to be in a great degree preventable, and this done to make known the result from time to time to those who are chiefly concerned in sanitary evils and their removal, so as effectually to bring home to the dwellers in darkness, ignorance, and disease, the immense significance of the facts taught by these figures."

This method of procedure has been carefully observed by our modern compilers of records, and one has but to glance at the Annual Report of the New York Board of Health, or the Registrar-General's Sixteenth Annual Report for England, to be convinced of its adequateness. Thus, looking over the tabular statements of deaths alone for nine months, as given in the Annual Report of the Board of Health for the Metropolitan District of New York, we find the following exhaustive and systematic arrangement. The first distinction is between males and females, and a separate, complete statement is given for both. The causes of death are distributed into five general classes, of which the first is that of zymotic diseases. Of this class four orders are given, the first of which embraces the miasmatic diseases, twenty-four distinct varieties being enumerated. The number of deaths by each of these is set down in parallel columns for different ages from one year up to five, and in quintades, from five to a hundred. The total of both sexes and a percentage of each cause in total is added. The next order is the inoculated diseases, four varieties being given with the same tabulated distribution. The third is the order of dietetic diseases, containing five varieties, and the fourth that of presoteric diseases—one variety. The second class embraces all constitutional diseases of which two orders are given—diathetic diseases and tubercular—eleven and six varieties being ranged under each head respectively. The third class gives local diseases—eight orders. The first order—nervous diseases—twenty-one varieties; second order—circulatory diseases—eleven varieties; third order—respiratory diseases—twelve varieties; fourth order—digestive diseases—twenty-one varieties; fifth order—urinary diseases—nine varieties; sixth order (females)—generative organs—five varieties; seventh order—locomotory diseases—four varieties; eighth order, integumentary diseases—four varieties. Fourth class—developmental diseases—four orders. First order—developmental diseases of children—ten vari-

eties ; second order—developmental diseases of women—seven varieties ; third order—diseases of age—two varieties ; fourth order—diseases of nutrition—two varieties. Fifth class—deaths by violence—four orders. First order—fractures, accidents, and negligence—twelve varieties ; second order—murder and manslaughter ; third order—death by suicide—four varieties ; fourth order—execution—one variety—hanging.

We here have, differentiated according to the best nosological lists, one hundred and seventy-five different causes of death manifested in their operation among a population of one million two hundred thousand persons, with the distinctions of sex, age, condition, occupation, colour, nativity, and residence. It is true these figures represent only an approximative analysis, with the disadvantage of errors arising from individual judgment, but it is as close an approach to the truth as is possible under the circumstances.

The same system is pursued in the Registrar-General's Annual Report, and the returns of the various *arrondissements* of Paris, and is applied equally to the social and geographical distribution of the population. The mass and maze of figures, the computations, comparisons, and proportional deductions in these statistics, afford evidence of severe and conscientious labour, and are an earnest that, with increased observation on the part of those whose duty it is to furnish information to the sanitary bureaus, the most decided sanitary advantages will accrue to the inhabitants of large cities.

Previous to the year 1839 the record of deaths and diseases in the great European cities was so imperfect, that people were really not aware what havoc the fell-destroyer was making on all sides of them. Because they did not see the mischief, they did not trouble themselves about it, and no doubt enjoyed the assuring consolation that the condition of the poor and labouring classes was all that could be desired. In the year 1838 three London physicians, intimately acquainted with the sanitary, or rather non-sanitary condition of that vast metropolis, addressed urgent letters to the Poor-law Commissioners, calling their attention to countless nuisances which were undermining the public health, and fast threatening the scourge of epidemic. The matter was taken up by the House of Lords, and enquiries were at once set on foot to ascertain the exact sanitary condition of the principal cities in the United Kingdom.

Figures at once did the business. The first annual report of the registrar-general was published, and the frightful condition of the poorer classes in the large cities and in the manufacturing towns was brought to light. Mr. Farr, who busied himself diligently in investigating these facts, and to whom we are indebted for some of our most valuable sanitary reforms, compared the mortality of about seven millions of persons, one-half of whom were located in towns, the other half in counties. He found that the aggregation of persons in the cities caused double the number of deaths from epidemics and from nervous disorders. In counties, compared with cities, deaths by convulsions were as one to three, and deaths by acute diseases of the lungs as one to two-and-a-half. The deaths from consumption were increased thirty-nine per cent., those from childbirth seventy-one per cent., and those from typhus fever two hundred and twenty-one per cent.! The total number of persons in the metropolitan districts of London who received out-door parochial relief during the year 1838, was seventy-seven thousand one hundred and eighty-six, and of these thirteen thousand nine hundred and seventy-two had been prostrated with typhus fever during the course of that year. Further enquiry also proved that this number dwelt within a very circumscribed limit. When the condition of other cities was enquired into at the same time, a similar and even worse state of things was found.

At length the cause of all those miseries was investigated. For the first time it became generally known in England that ill-ventilated and overcrowded tenements, defective sewerage, an insufficient supply of water, and want of nutritious food were at the root of those excessive mortality bills which had just frightened the nation. In the town of Nottingham, out of eleven thousand houses eight thousand were found to be built back to back, in the utter impossibility of ventilation.* In Liverpool there were seven thousand eight hundred and sixty-two inhabited cellars—damp, dark, dirty, and ill-ventilated—lodging one-seventh of the whole population. There were, besides, two thousand two hundred and seventy *cul des sac* courts in which from two to six families resided. In Manchester out of one hundred and twenty-three thousand two hundred and thirty-two workers fourteen thousand nine hundred and sixty lived in noisome and disgusting cellars. In a single ward in the town of Leeds, containing fifteen thousand

* Journal of Statistical Society, 1840.

four hundred of the working classes, three streets were found to have sewers, thirty-eight to have none, and the state of forty was unknown. The condition of Glasgow, Scotland, was still worse, for here twenty-one thousand eight hundred persons were stricken down by typhus fever at the same time,* while throughout the cellars and wynds of that busy city a population of thirty thousand lived in the utmost squalour and wretchedness. The reports for the metropolitan districts of London exhibited frequent pictures of this sort: in one small garret the husband ill of typhus, a sick child stretched across his bed, two others sleeping under the bed, the two window recesses let to two lodgers at sixpence a week, as resting places for the night, the wife, a young, healthy woman, sleeping in the same bed with her sick husband. Dr. Symmonds, of Bristol said that he found in that city a room twenty feet by sixteen, in which thirty persons were in the habit of sleeping at night, and that one morning seven of them were corpses.

These are the stray facts gleaned at random from a mass of evidence which, for the first time, brought forcibly before public attention in England the dire condition of the poor classes whom legislation had hitherto entirely ignored. Elsewhere affairs were no better. It is true that in Paris, Vienna, and St. Petersburg, a medical police had long been established, but the want of proper statistical grounds on which to base some action, had nearly rendered it inoperative. The narrow and winding streets of Paris were no better than slums and purlieus where a festering mass of humanity rotted and died. Especially was this true of the Quartier Latin. In Constantinople and Vienna the mediæval plague-spirit still breathed its deadly blasts at intervals, and of course enquiry led to the establishment of the same result, viz., that neglected sanitary precautions, squalour, indigence, and reeking rottenness were the scourge which chastened the people from time to time.

The alarm thus sounded awakened attention on this side of the Atlantic, and in New York a condition of affairs was discovered, which one year before would have simply been deemed incredible. The Five Points were almost for the first time invaded by the footsteps of the sanitary patrolman. The low quarters of the Sixth and Fourth Wards were visited, and though the overcrowding which rendered the air of St. Giles' and Angels' Meadow

* Dr. Cowan, Vital Statistics.

gaseous poison, was not here quite so bad, still every known insanitary influence was at work to undermine the public health. Unsewered streets, insufficient water pumped from soil sodden with the soakage of ordure, an atmosphere polluted with the exhalations of reeking street filth, underground dwellings—these were the agencies which bred, or at least fostered, the first great cholera visitation in New York.

When these facts were brought before the notice of the public, much was said and written about the necessity of sanitary reform. The City Inspector's office was besieged with complainants who gave detailed accounts of numberless nuisances, which everywhere threatened imminent danger to the health of the city. Magnificent promises were made that a sweeping reform would at once be instituted; the plans, even, were sketched out and made public; New York was to become the paragon of cities in a sanitary point of view; and already, in anticipation of the work which was to be accomplished, the people congratulated themselves on having so beneficent and public-spirited a municipality. But, as every one too well knows, such promises were made only to be broken, and for twenty years thereafter the residents of New York, instead of experiencing relief from their grievances, felt that the tide of disease, filth, and destitution was only the more strongly setting in upon them. Uncleaned streets, rookeries, and fever-nests continued to multiply; tall chimneys, in quick succession, reared their hideous shapes, and belched forth clouds of poison-laden smoke; slaughter-houses sprang up in the most crowded districts, and tainted the air with the emanations of their blood and refuse, which used to remain for days festering under a midsummer sun; typhus fever, smallpox, and dysentery reigned supreme along the river-side streets, and never suffered molestation from the presence of a physician, while the hope of reform appeared as distant as ever.

After a full discussion of the condition of the poor in London, Paris, Vienna, and New York had appeared in the public prints, the conclusion was reached that the first step towards a permanent reform should be an abundant supply of pure water, for consumption and for cleansing purposes. When we consider that most ancient cities but rarely suffered from a dearth of pure water, it will be interesting to note the terrible insufficiency of this indispensable article in some of our principal cities. Taking London as an example, we

find that up to a few years ago the supply of water was entirely inadequate. From twelve to eighteen gallons per head was all that the utmost efforts of the water companies could supply. The new aqueduct, however, increased the amount, and to-day about one hundred and eight million five hundred thousand gallons are distributed daily among a population of three million. And yet the upper and middle classes alone have profited by the surplus, for the rate of supply is still the same for the poor. A late resident medical officer in one of the London fever hospitals, while investigating the course and cause of fever, thus speaks of the insufficiency of the water supply: "First, as regards the water supply of these nests. This is extremely deficient. Those houses the best supplied have each a butt holding about eighty gallons, into which water flows from a stand-pipe, from ten minutes to half an hour each day, and is supposed to supply the wants of twenty persons for cooking, the washing of their persons, house, and linen, and for the rinsing down of their water-closets, at such time as it may suit the caprice of any one of the inmates. On Sundays even this supply is absent, the water of the day before is gone, and in many houses that for the Sunday cooking has to be begged from neighbours who may have provided themselves with a larger butt, who are more provident or more dirty. Sometimes, for part of Sunday and Monday, a whole court has to borrow for their scant necessities, from a 'Public,' at the corner. * * * More than nine-tenths of these water-butts have no covers, and fully half are so placed as to catch the drippings from the foul eaves of the houses, and are lined internally with scum and slimy vegetation. More than a few are so rotten that one's fingers can be pushed through them, and they allow the water to run rapidly off—an evil for which there is some consolation, as it is better than that the water should be swallowed after it has imbibed the soppy sewage, sometimes of the foulest description, in which the water-butts frequently stand."

During the short interval that the water flows into these butts, a long line of women forms, waiting for their turn, and sometimes after repeated efforts to procure a pitcher or bucket of water, many of those poor creatures go away without a drop, day after day. And this is the manner in which the poor of London are supplied with water even to-day! In other European cities the same insufficiency is complained of, owing to the same cause, viz., the use of cisterns and butts, and the intermittent flow of the water.

Thanks to the magnificent scale on which nature has constructed her rivers and lakes on this side the Atlantic, no such source of complaint can exist. Philadelphia and New York are the best water-supplied cities in the world. On an average, fifty-eight million gallons flow through the Croton aqueduct daily, and this, at our present standard of population, is more than sufficient to meet all the wants of the people. But the rapidly increasing population of New York will soon demand a more copious supply, and already the Croton Board, with laudable foresight, has provided for the damming of another lake in Putnam county. Philadelphia can supply seventy-three gallons a head *per diem* to her citizens, and has the credit of being able to furnish, within a specified time, more of nature's refreshing beverage than any city in the world. In the United States, therefore, the question of water-supply has been satisfactorily solved, and wherever a bank, a church, and a school give indication that the germs of a city exist, the means for obtaining a healthy and sufficient supply of water are being studied.

But, with these advantages, and the thorough appreciation of the necessity of an abundance of pure water, our citizens everywhere seem to overlook, in a very unaccountable manner, one of the most useful purposes which a copious supply of water might be made to subserve, and that is, the establishment of public baths. The hygienic and sanitary effects of such a step are incalculable; it is the first great lesson the people have to be taught, ere they can appreciate to the full the sanitary blessings which the future has in store for them. What a reproach it is to our boasted civilization that ancient Rome offers us an example of cleanliness which all our reverence for that virtue and the recognised and oft talked of close connection between public cleanliness and public morality, have failed to make us profit by! Physicians can tell us to what an extent all current disorders are dependent on the neglect of just such personal cleanliness as the establishment of public baths might obviate. Rome had to depend for her supply of water for bathing purposes on numerous aqueducts built at a vast outlay of money, whereas our seaboard cities might find in the salt water of their harbours a far cheaper and more suitable element for the same purpose. Those whose means enable them to enjoy this luxury in their own houses or to pay a high price for it in the few bath-houses we have, are well aware how indispensable it soon becomes, and what an

aversion to filth the frequent use of it engenders. In the same way no doubt the poorer classes, if the means of frequent bathing were within their reach, would come to regard the neglect of personal cleanliness as a species of sin which no consideration could palliate. A sanitary conscience would be created in them, and from attending to cleanliness of person they would soon consult cleanliness of surroundings, and so greatly facilitate for the social reformer the important question of public hygiene. This culpable negligence on the part of those to whom the guardianship of our sanitary interests is entrusted, is rendered still more culpable by the inadmissibility of the plea of ignorance.

There is no fact better understood to-day than that frequent bathings is a most valuable promoter of health. It is a fact that has received the clearest light from the establishment of sound sanitary and hygienic principles. A comparison of our knowledge in this respect with the ignorance of the ancients, will render still more striking their painstaking and our indifference. The precepts of hygiene, handed down by tradition, were exceedingly meagre and defective, encumbered with much superstition and mysticism. Galen was the first to formulize them, and from the following summary, enveloped in the mazes of a barbarous nomenclature, we may judge how valuable they were as guides in practice: "Whoso wishes to re-establish his health must investigate seven natural things, viz., elements, complexions, humours, members, virtues, spirits, and operations; six things not natural, viz., air, food and drink, starvation and repletion, motion and rest, sleep and wakefulness, and the accidents of the soul, and three things outside of nature, viz., disease, the causes of disease, and the accidents accompanying disease."*

With no better theory to guide them, the will-o'-the-wisp light of such jargon, too much praise cannot be accorded those who, in obedience to the dictates of common sense, founded the most useful and indispensable sanitary institutions. Among us it is well understood that the skin is an important excretory organ, affording great aid to the

* Qui sanitatem vult restituere debet investigare septem res naturales, quæ sunt elementa, complexiones, humores, membra, virtutes, spiritus, et operationes, et res non naturales quæ sunt sex, aer, cibus et potus, manitas et repletio, motus et quies, somnus et vigilia et accidentia animi et res extra naturam quæ sunt tres, morbus causæ morbis et accidentia morbum concomitantia.

lungs and kidneys in the task of getting rid of effete materials, which have discharged their role in the system and are fit only to be ejected. We know that the want of personal cleanliness leads to the stopping up of the skin pores, and that the other organs, being compelled to take on increased activity, often break down in the effort, and fatal disease ensues. Yet, despite these well-known facts, the utmost apathy is manifested in regard to the means of instituting some reform. Notwithstanding that in this city two deep and wide rivers pour their refreshing tides almost past our very doors, we know not the benefit of a public bath.

Conjointly with the question of water-supply, another of equal importance claimed the attention of sanitarians, viz., the sewerage of towns and cities. The surface-drains to which many physicians ascribed the plague visitations of past times, were long since abolished, and underground sewers constructed in their stead. But many practical difficulties had to be overcome ere they could be made to work effectually. The entire ignorance of those who undertook the construction of them, their irresponsible action and the defective material employed, rendered the first attempts at underground sewerage unsuccessful. But perseverance triumphed, and a system of drainage was everywhere established, which conducted the sewerage in whatever direction the inclination of the channels tended. In large cities the river was made the grand receptacle for the contents of the sewers. At short intervals these debouched into the stream at tide water level, sometimes below it, and so performed their purifying mission as best they could by this irregular discharge. The merits of the system were quickly tested in most populous cities, and first in London, where woful ill-success attended its operation. The flow of sewerage into the Thames made that river an open sewer, poisoning its water and polluting the air, while the ebb and flow of the tide churned up the foul mixture, and never allowed it to flow out to the sea. Zymotic diseases flourished meanwhile, and there was a loud cry for a return to the old system or no system at all, in preference to one which rapidly threatened epidemy.* At last the offence smelt rank in the

* Faraday, in a letter to the *London Times*, 1854, thus describes the condition of the Thames before the present sewer system was in operation: "The smell was very bad and common, to the whole of the water; it was the same as that which now comes up from the gully-holes in the streets. The whole river was for a time a real sewer. Having first returned from out of the country air, I was perhaps more affected by it than others, but I do not think I could have gone

royal nostrils, parliament had to be dissolved, and the Metropolitan Board of Works was appealed to for the inauguration of another and more effective mode of sewerage. The importance of the question, as essentially affecting the sanitary condition of a city where three million people were closely packed, gave rise to long and earnest discussion; many plans were submitted by engineers and their claims carefully examined, but it seemed at first as if none could entirely solve the problem of thorough street and cellar drainage without making the Thames a sink of pollution. Heretofore all sewers had been constructed at tide level, and so the lower portions of the city were at best but imperfectly drained, while excavations below tide water line became cesspools from which no outlet was possible. It was proposed that in the new plan both these inconveniences should be obviated, though the difficulty of discovering such a plan was thereby vastly increased. The steam engine which had so often before proved a *Deus interfit* to the puzzled engineer, solved this new problem, and bestowed on London the greatest sanitary blessing of modern times, an irreproachable sewer system.

Three great arterial trunks were built on each side of the Thames, intercepting, at short intervals, transverse pipes, which empty into them. These mains measure from six to ten feet in the clear, and receive a steep inclination, so that no foulage can rest on the bottom. Owing to this steepness they cannot run far ere they attain the lowest depth that can be conveniently reached; the contents are then pumped to an upper level, and they pursue the same course in the next articulation. A high level, a middle level, and a low level sewer connect in this manner, and carry off most effectually the sewage of the lowest as well as the most elevated portions of the city. The low level sewers, at some points, reach the depth of seventy feet, and at Tower Hill and for miles along the north side of the Thames, it was found more feasible to tunnel through rather than excavate. After receiving the sewage from the subsidiary sewers of the districts through which they pass, these lower level sewers converge on either side of the Thames, and the contents are pumped into outfall sewers—a species of covered canal, running along the riverside to a point where the contents

on to Lambeth or Chelsea, and I was glad to enter the streets for an atmosphere, which, except near the sinkholes, I found much sweeter than that on the river."

are discharged into the stream. At this point two large reservoirs are built, capable of containing as much sewage as might accumulate during the influx of the tide. When the tide begins to fall, these reservoirs are pumped into the river, and so the sewage is wafted to the sea and the upper waters of the river remain unpolluted.

Besides these evident advantages, this system has solved the oft-recurring difficulty of the utilization of sewage. The barren wastes and swamps which bordered the Thames for miles below London have suddenly flowered, and bear as rich a vegetation as the plains of Lombardy. These "outfall sewers" are uncovered at intervals and allow the abduction of their contents, while the reservoirs furnish an inexhaustible fund of this incomparable earth-food.

From what has been said it is evident that the two great advantages of this system of sewerage are, first, the deep drainage it allows, and, second, the removal to a distance of that which, when allowed to remain too close at hand, is a source of pestilence. There can be no doubt that the adoption of this or a similar system of drainage is intimately connected with the healthiness of all the growing cities in our country, where the benefit of deep drainage would at once do away with the terrible curse of miasmatic and intermittent diseases. If we recall the ravages of yellow fever, last summer, along our southern seaboard cities and the river-built towns of the South, and give weight to the opinion that this disease is miasmatic, how important this question becomes? If the low lands and levees of New Orleans and vicinity were drained to a low depth, the probability is very great that that city would enjoy the same immunity from this terrible scourge as cities situated farther north.

Even to-day the city of New York is a favourite nest for that dismal malady—fever and ague—entirely through want of a sufficiently deep system of drainage. Above Forty-second street one is not sure what moment his joints may begin to creak, his teeth to chatter, and his whole body experience repulsive symptoms of ague. Even exemption from the disease below this line is nothing but a pleasant fiction, for a glance at the topographical map of the city by General Viele, will show that portions of Fifth and Madison avenues are, according to the laws of cause and effect, as assailable as points farther up. In Canal street and the old swamp, sewered, as they are, according to the present system, water is

reached at the depth of seven feet; and it is certain that, if these localities were inhabited, instead of being given up to commerce, they would be the favourite haunts of intermittent fever. In the made lands along the river side, where the sewers empty into the river below tide-water level, they become choked with the return of the tide, and their contents driven back to the source. Now, if a deep drain system of sewers were established, these inconveniences would be avoided. Cellars might be built without making coffer-dams of them, while the slips along our wharves would not be constantly filling up with the foul discharges from the present sewers.

Intimately connected with the question of sewerage is that of the utilization of sewer contents, by which the pernicious consequences of their continued decomposition can be avoided, and a most decided benefit conferred on agriculture. Professor Liebig writes: "Of all the elements of the fields which, in their products, in the shape of corn and meal, are carried into the cities and there consumed, nothing, or as good as nothing, returns to the fields. It is clear that if these elements were collected without loss, and every year restored to the fields, these would then retain the power to furnish to the cities the same quantity of corn and meat, and it is equally clear that, if the fields do not receive back these elements, agriculture must gradually cease. In regard to the utility of the avails of the sewerage of towns as manures, no farmer, and scarcely an intelligent person, has a doubt."*

There is a sort of compensating justice in this, which, apart from the necessities and advantages of the plan, points it out as in full harmony with the economy of nature. We have already remarked that the outfall sewers of London allow the removal of the sewage at intervals along the line, and the conversion of the barren wastes by the Thames into beds of tropical productiveness, ought to be a powerful incentive for the contrivance of some plan by which this valuable fertilizer may be entirely utilized.

An ingenious writer has observed that the triumphant solution of this question will give, in cities, a result similar to the arterial and venous system in the circulation of the blood. "As there comes from an affluent river, or some large reservoir, a great aqueduct full of water into the town, which divides itself into main pipes along the chief streets, which

* See Liebig's letter to Alderman Mechi.

then, in their turn, by one or more processes of subdivision send a small tube full of water on high pressure perpetually running, or ready to run, into every house ; so let the water, carrying with it the impurities of the house, pass outwards and join a street pipe, which joins a larger pipe or sewer, and this again a larger, till the whole accumulated filth rolls onward in one volume." Though this solution of the difficulty appears fanciful, the utilization of sewer contents can never be considered complete till such a compensating balance be struck. The numerous advantages which would attend a practical solution of this question cannot be overrated. Long before the sanitary aspect of the case had engaged public attention, individual interests were at work studying the matter, and, imperfect even as were the measures concerted, their operation brought unlooked-for gain. A sewer passing between the sea and the city of Edinburgh, was tapped by some farmers owning meadow lands near by and, though the matter appeared at first sight quite insignificant, so rapidly did the lands increase in value that, when the attention of the town authorities was drawn thereto, a prescriptive right was claimed by the owners of the land ; nor would they waive it for a less sum than £150,000. This is but an instance of the lucrative results of the employment of sewage in agriculture under most unfavourable circumstances. As engineering and mechanical appliances increase we should look for the adoption of some system which, while trebling the value of produce lands in the neighbourhood of cities, will greatly aid the sanitary reformer in the solution of a perplexing difficulty.

One of the most interesting questions which at present engross the attention of hygienists is the removal, beyond city limits, of all pursuits and occupations of a nature to injure the public health. The *abattoirs* of Paris brought under discussion the necessity of superseding the old system of slaughter-houses by concentrating this business at a few convenient points, with improved facilities for getting rid of the impurities which it necessarily generates. Warring interests prevented the sanitary authorities from effecting this reform to any great extent. The innocuous character of the business was insisted on by interested parties, and a clog thrown in the way of all enlightened legislation. A few men, who had spent their lives in the neighbourhood of large butcheries, without suffering any apparent falling off in health, were cited in evidence of the non-insalubrity of their topical influence, and all the means which large,

moneyed interests could control were used against the projected reform. It was useless to demonstrate by reason and statistics the great mortality prevalent in the vicinity of these establishments; greed and ignorance still maintained a successful fight against all attempts at amelioration, and the progress of the work in the cities of England and the United States was greatly retarded.

And yet we find the popular voice clamorous against slaughter-houses within city limits at a date when certainly their insalubrious character was far less than it is to-day. In the fourth year of Henry VII. a petition was addressed by the inhabitants "of St. Faith's and St. Gregory's, in London, near adjoining the Cathedral Church of St. Paul's," stating that the "parishes aforesaid were greatly annoyed and distempered by corrupt airs engendered in the said parishes by reason of the slaughter of beasts had and done in the butchery of St. Nicholas; and, whereas, sundry complaints have been made to the Mayor and Aldermen during sixteen years, and no remedy found." They pray the king "out of his abundant grace to aid his poor subjects in this behalf, considering that in few noble towns or cities, or none within Christendom, the common slaughter of beasts should be allowed within the walls of the same." This petition resulted in the enactment of a decree that "no butcher or his servant is to slay any beast within the walls of London, or any walled town in England, under a penalty of twelve pence for an ox or cow, and eight pence for every other beast." Of course the law remained inoperative for centuries, but was never removed from the statute-books.

The various reports by sanitary inspectors in different cities present this matter in a very forcible light, and render incontrovertible the necessity of removing, beyond the crowded districts of the city, of shambles and slaughter-houses, no matter how carefully managed. Wherever these nuisances exist, the kindred ones of fat, bone, soap, and gut boiling establishments are sure to spring and increase the pollution. "It is positively asserted," says the Report of the New York Board of Health, "that more noxious gases escape into the air from this source than would result from the decomposition of human bodies if the whole island were a graveyard." Again: "The large amount of animal matter discharged into the sewers often causes obstruction, and the stench which is then forced back through the street culverts and manholes is unendurable."

During the earlier visitations of the cholera in the cities of the United States and England, the footprints of the disease could be traced, with devious turnings, through all the districts where these plague-houses abounded. It is a consolation to reflect on the much-needed reform in this respect which has already taken place, but we can never consider the work perfected till the last quadruped has been immolated within the walls of a city. Injunctions, stays of proceedings, reclamations, and all the machinery which belonged to a cumbersome law system, hampered the first efforts of the New York and London Boards of Health to procure an abatement of the nuisances; and though in London the Board now wields unlimited sway, the opposition here is still strong, and sometimes successful.

Fat and bone boiling establishments, which once impregnated with their noisome exhalations the atmosphere of whole cities, and diffused an aërial poison taint like the greasy stench of a crowded graveyard, have, within a few years, ceased to be wellsprings of disease. This desirable result has been brought about by certain chemical processes for the deodorization or combustion of the noxious gases. In France and Germany methods are employed for the extraction of fat which do not seem to be well understood in this country, though it is said that the yield is greater and the product superior, while the escape of offensive gases is almost nill. The hydro-carbon oils and naphtha are employed for these processes. There are several patented processes for the operation in this country, all of which have proved more or less successful. As there are few whose olfactories have not, at some time or other, experienced the rank offence of this nuisance in every city of the country, it may not be amiss to give a succinct description of the means by which fat and bone boiling are now conducted in a comparatively harmless manner.

Perhaps the most successful plan on trial is that patented by Messrs. Lockwood and Everett, and thus described by Dr. Moreau Morris, of New York: "The crude material is placed in steam-tight tanks, which are heated by steam applied on the outside. The deleterious gaseous products are forced by pressure evolved within the tank, through an iron pipe connected therewith, and continued into a separate and independent furnace, where, by a system of iron coils, which are heated to a red

heat, these gaseous vapours are so superheated that they become combustible ; when in this condition they are brought by a scientific and ingenious arrangement of argand burners in contact with the flame of the furnace, in combination with sufficient oxygen to produce perfect combustion, and finally passed off by an ordinary chimney, without any offensive odour. This process certainly destroys the nuisance, is ingenious, scientific, and applicable to a variety of businesses now abandoned for the want of it, as impracticable." When we consider the simplicity and entire efficiency of this plan, and similar ones, we cannot but be struck with the apathy or stupidity which so long permitted a nuisance to spread its rancorous exhalations on every side, without the slightest measure being taken to suppress it.

There is another nuisance which corporate interests still support, against all attempts at reform, viz., the noise and poisonous exhalations of gas-houses. The deleterious influence of the constant escape of sulphuretted hydrogen into crowded districts, need not be dwelt upon. Whoever has sauntered along the river streets of New York, especially in the vicinity of the gas-houses, will need no reasoning to convince him that death was rife in the air he breathed, and that there was no occasion to wonder at the wan and wasted features which met him at every step. The experience of London amply proves the existence of adequate means for the nullification of this source of town and city insalubrity, but either a reluctance on the part of the companies to employ those means, or an unintelligent application of them, has left this nuisance almost as much a subject of complaint as ever. It is to be hoped that wherever organized boards of health exist, they will not neglect the interests of the community in this respect, and will compel gas companies, even at a large additional outlay of money, to conduct their business without rendering it an imminent occasion of pestilence.

It is gratifying to note the energy with which our Health Board have proceeded against the numberless unhealthy occupations which heretofore have been carried on under cover of the dark and winding streets of cities ; and though ill-judged zeal may at times have marked their interference, they have accomplished an amount of substantial good which it would have been vain to expect from the old health organizations. The restrictions placed on the importation and storage of rags ; the abolition of cesspools ; the effec-

tual removal of garbage and house-slops ; the crusade against cellar and basement population ; these are but a few of the advantages for which we are indebted to the intelligence of recent sanitary officials, whom previous training had fitted for their duties.

But, as already intimated, all efforts will end in nothing more than a partial suppression of the evils which beset the poorer classes in large cities, till a proper *sanitary* sentiment is diffused among them ; till they are convinced that happiness and comfort depend on their exertions to keep themselves and their surroundings clear. Cleanliness is the religion of the body, and as its opposite is the most frequent attendant of moral turpitude and degradation, so a due regard to it is almost the first condition for being lifted out of the slough of immorality. Whoever has read a few of the numberless reports on the sanitary condition of the poor in the capitals of Europe and America, will not fail to be impressed with this truth. Hitherto the duties of the clergyman and the sanitary inspector have been kept too distinct, and though we would not recommend the latter to assume functions evidently inconsistent with his profession, we see no reason why the minister should not in his visits among his flock, and even from the pulpit, inculcate cleanliness and hygienic habits. The positive gain to the morals of the people cannot be over-estimated ; filth would become synonymous with sin, and those bodily diseases resulting from an utter disregard of sanitary and hygienic measures, would be viewed in the same light as those which are born of vice, profligacy, and crime. A moral, as well as a social distinction, would be drawn between those who cultivate cleanliness, so far as surrounding circumstances might allow, and those who heedlessly wallow in a superabundance of filth.

There are many associations whose sole object is the distribution of religious tracts among the poor, and their *colporteurs* may be met in the low quarters of every city. But surely nothing short of miracles daily and hourly performed could create a religious feeling in those crowded dens of humanity, where a ray of sunlight never enters, where a breath of fresh air is never drawn. The poor may well say, " We have asked for bread and you have given us a stone." The way must be paved for the religion of the soul by preaching first the religion of the body. Give the people well-ventilated habitations, prove to them that it is their best interests to keep these clean, give them plenty of

pure water to drink and to wash in, and teach them the necessity of doing so, give them the benefit of all the advantages which sanitary science has created, and enforce proper co-operation therewith, and of their own accord the most abjectly poor will turn their hearts to religion. Let sanitary tracts precede religious tracts, let the poor know that God requires of them to be clean bodily as well as spiritually; tell them how this may be done and what advantages of health, pocket, and domestic happiness will flow to them from the proper observance of hygienic rules, and religion will be vastly the gainer. How sadly deficient in this knowledge the poor unhappily are it is but too easy to demonstrate. If on entering a tenement-house, where the sickening atmosphere almost cries out for open windows, the first inmates we meet tell us that they keep the windows closed to keep out the dust, or because it is far more comfortable not to open them, or some one of the family is not well, or some one is afraid to take cold; if the filthy state of the house is found fault with, the ready answer is that it is just as good as the next one, or that it would be just as bad as ever in a short time if they were to clean it. We enter a room where the stifling air of the halls is intensified, and, beyond a doubt, we see a pale and emaciated figure stretched on a pallet, while several kind neighbours, on a visit to the patient, crowd the room to repletion. They breathe the polluted air, tainted too with the poison of typhus, in utter ignorance of danger, and reply to any questions on the subject that they have hitherto lived with impunity in the same manner, which sufficiently proved that there could be no harm in it.

ART. IV.—1. *Thoughts on Animalcules; or, A Glimpse of the Invisible World revealed by the Microscope.* By GIDEON ALGERNON MANTELL, LL.D., F.R.S., &c. London, 1846.

2. *A Handbook of the Microscope and Microscopic Objects, &c., &c.* By W. S. NOTCUTT. London, 1859.

3. *Microscopical Researches into the Accordance in the Structure and Growth of Animals and Plants.* By DR. TH. SCHWANN.

4. *Quarterly Journal of Microscopical Science.* London.

5. *Transactions of the Microscopical Society.* London.

SURROUNDING US upon every side, an extensive and indispensable portion of the material universe, exists a multitude

of objects, so minute that the human eye, unaided by external power, cannot perceive them. The belief in invisible existences, of degrees above and below the human ratio, has been common to mankind from the earliest ages; and before the clear light of science dissipated the clouds of superstition, earth, air, and water were credited with monstrous and malevolent creations. The visible portion of nature, teeming with life, supported the belief in the existence of these invisible beings; and modern science has verified it, although it has destroyed all ideas of their supernatural character.

The portals of this unknown world, whose inhabitants are as innumerable as the sands of the sea-shore, have been opened to us by the use of the microscope, an instrument in itself so small, and in its construction so simple, that we cannot be surprised by the fact that its revelations met with but tardy reception when they were first submitted to the world at large. The man who measured his knowledge by his personal powers of observation, and this in an age when scientific information was confined to the few, may well be pardoned his unbelief in an assertion which endowed a drop of clear water with millions of inhabitants.

Although the powers of the simple microscope have long been known, it is only within a comparatively few years that it has been recognised in its true value as an indispensable companion in all research into material organization. There is scarcely a department of science, art, or industry, which has not, within the last half century, been greatly benefited by its use. At the present day its revelations are accepted by the scientific investigator as one of his chief aids. Thus the chemist defines the different angles of the mineral substances of his laboratory, and detects the presence of adulterations, or poisonous matter, in food, or in the human system; the geologist determines the composition of his favourite strata; the meteorologist explains the strange phenomena of sand-showers, blood-rains, and *aërolites*; the botanist studies the curious foreshadowing of the operations of human life in the vegetable; and the physiologist tracks to its hiding-place in cell, nerve, or muscle, the latent seed of disease. The philosophical toy of the past century has become a power in the hands of its masters; another instrument for augmenting the influence of man over organic matter, which opens up to his comprehension hitherto unknown elements in nature; and these, subjugated to his will, increase the endless chain of dominion which falls, link after link, into his hands.

The history of science is a record of experiments—guesses at truth ; and false reasoning, based on imperfect observation, has incorporated into its repertoire many undue conclusions and empirical results. To dissipate these *ignes fatui*, which often mislead the investigator, the most exact and minute observation is necessary, and the entire chain of reasoning must be based on established facts. In the investigation of material existences what proof so positive as the actual material condition revealed to the eye ? And what medium more reliable than an instrumental aid to the vision which lays bare the composition of the minutest atom, even the five-hundred-millionth part of a drop of water ? The honest doubt which searches for a positive material proof, cannot, herewith, fail to discriminate between mere probability and certainty. Who shall set a limit to the progress of legitimate investigation, or declare that man's intellect has fathomed the depths or attained to the heights of nature, even in physics alone ? “ Nature herself knows no pause in progress and development, and attaches her curse to all inaction.”*

We have alluded, in a previous paragraph, to the antiquity of the microscope ; it appears from a certain passage in Seneca† that an instrument of similar nature was well known in his time, although its invention is claimed by several Germans in the early part of the seventeenth century. True it is that Zacharias Jansen, a spectacle-maker at Middleburg, constructed a compound microscope, with an eye-glass composed of a concave lens, about 1590. Galileo made, and sent to Sigismund, king of Poland, a good instrument in 1612. In 1618, Fontana, a native of Naples, perfected one with two double convex lenses ; and we are quite justified in believing him to be, as he distinctly asserts himself, the inventor of this form of compound microscope. In 1824, Mr. Tulley, of London, produced an achromatic object-glass for a compound microscope, the first one ever completed in England. About this time a thorough investigation of the capacities of the instrument was commenced, almost simultaneously, in Paris, Munich, and London ; and its true merit was definitely acknowledged.

The microscope, in its simple form, consists of one or more lenses of a limited focus, which enable us to see an object

* Goethe, in *Die Aporismen über Naturwissenschaft*.

† “ *Litteræ quaravis minutæ et obscuræ ; per vitream pilam aquæ plenam majores clarioresque coeuntur.* ”

more clearly and accurately than with the naked eye, and it is generally called a magnifying glass. Compound microscopes are provided with an extensile tube, at the upper end of which is placed the eye-piece, and, at the lower, the object-glass; a third glass, called the field-piece, is placed within the body of the tube. The binocular microscope was first experimented on in 1851, and completed in 1852. Its chief point of difference from the styles previously mentioned consists of the substitution of two eye-glasses for the one of the old styles; thus relieving, somewhat, the violent exertion of the optic nerve consequent upon the use of the latter. The achromatic object-glass consists of two lenses, possessing different refractive and dispersive powers, so arranged that the defects of one are counteracted by the other, and a clear, steady light is thrown upon the object in view.*

One of the most important adjuncts of the microscope is the micrometer, an instrument for obtaining accurate measurements of microscopic objects. It consists of two slips of glass ruled at equal distances in very fine lines; one of these glasses is placed at the eye-piece, and the other is movable about the stage where the object under observation is mounted. The *camera lucida* is a small prism of glass attached to the eye-piece, so that a paper being placed under it, and the object to be drawn being properly focussed and illuminated, the magnified impression is cast upon the paper in such a way that a careful outliner may obtain a correct representation of the most minute object.

The mechanism for the polarization of light is in two parts, the polarizer and the analyzer. Several mediums are desirable for this purpose, viz., the Nicol's prism, the tourmaline plates, and, the most perfect, the artificial tourmalines or Herapathites. The achromatic condenser concentrates the light upon an object, defining its most delicate outlines. There are several other appendages quite requisite to the perfect working of the instrument, but not indispensable to its description.

The great body of animal life which is classed as microscopic necessarily comprehends that which has long been designated as *infusorial*, although the term does not strictly apply; for although these minute bodies were originally observed in waters infused with vegetable matter, still that condition is not indispensable to their existence, and only

* It is only within the last ten or fifteen years that these glasses have been perfected, and placed within the reach of all microscopic students.

serves as a congenial medium for their development. Microscopics are invisible to the naked eye, and in water are more or less translucent, and they seem, when viewed in a cursory manner, devoid of members, and even of some of the essential rudimental conditions of life; they are, however, endowed with the sense of touch, sometimes of sight, and they receive nourishment, and reproduce their species.

The forms of this phase of life are so strange and manifold, and the physiological qualities and properties originally attributed to them by some fanciful writers, and, later, the importance attached to their development by eminent medical theorists, is so great, as to have attracted to them the attention of some of the most learned and intelligent men. In fact, they owe their first thorough investigation and classification to Ehrenberg, the friend and co-laborer of Humboldt. He says, that "with lime and soda we can prepare glass and bricks out of invisible animalcules; use them as flints, and, with thin mountain meal composed of them, allay the pangs of hunger."

In these minute creations life exists in the simplest form wholly unaccompanied by, those complicated organs with which we are accustomed to associate its presence. A simple cell, of infinitesimal extent, lives, moves, and reproduces its species in a manner totally at variance with our received ideas of such operations. They are found in waters fused with vegetable matter, in clear streams, and in small pools filled by late showers; on the stems of water-plants is often found a mould or slime, which, when microscopically examined, is found to consist of innumerable masses of these creatures. When this appearance is bluish-white, the *Vorticella* and *Epistylis* are the predominating species; yellow gelatinous balls show the presence of the *Megalatrocha*, and the *Melicerta* exist in dark bristle-like forms; their presence is betrayed in the dust-like surface of stagnant pools, and also in the delicate, shining scums which cover the surface of some waters. In moist earth, the *Bacillaria*, or the *Diatomacea*, abound, either alive, or as a siliceous, shelly deposit. The water between 80° and 90° south latitude was observed, by Captain Ross, to be coloured a yellowish-brown by hosts of microscopic *Diatomacea*; and their remains, falling to the bottom, have produced a bank 120 by 400 feet, flanking the length of Victoria Barriers.*

* Dr. J. D. Hooker, Report to the British Association, 1847.

We cannot deny ourselves the pleasure of noting some of the peculiarities of these members of nature's great family, nor do we deem the close study of these atomic beings trivial. For "the higher enjoyments yielded by the study of nature depend upon the correctness and depth of our views; * * * the astronomer, who determines the diameter of a planet, does not feel his imagination more excited—and this is the guarantee of the precision of his labors—than the botanist who counts the divisions of the calyx, or the number of the stamens in a flower."

We shall first speak of the *Polypes*, or *Hydras*, who, although not strictly microscopic, their size being about one-tenth of an inch, still present a decided analogy to the smaller and more difficult animalcules. Their length, when extended, varies from one to three-fourths of an inch, and they appear to the naked eye like stiff bristles; the mouth is supplied with a number of delicate tentaculæ, which serve to seek and seize their prey; the latter is sometimes several sizes larger than themselves, but never, despite superior bulk and strength, escapes the *Polype*; it seems to paralyze all struggles, perhaps in the manner of the *gymnotus*, or electrical eel. Their motions are slow, and they are apparently destitute of visual organs, while they seem attracted by the light. Thus, if a glass vessel, containing some of the species, be frequently changed with the light, on alternate sides, they will always move in the direction from which it comes.

The *Hydra*, when removed from the water, appears like a small ball, composed of minute cells, the outer layer condensed to form a skin or shield. These animals are capable of supplying the form and functions of life to as many parts as each one may be divided into. Dr. Mantell records the sub-division of one body into ten parts, each one of which grew to be a distinct and perfect animal. The solution of this seeming wonder rests in the fact that the formation of the animal is analogous to the simplest form of vegetable life, the cellulose; of which class are the *confervæ*, the sea-weed, the common mould, &c.; in all these each cell contains the elements of a perfect being. The simplest form of life, the monad, is a single cell, so minute that a drop of water may contain five hundred millions.

The germs of these atomic beings exist everywhere. They are classed by Ehrenberg as the *Polygastria*, or many-

stomached, and the *Rotifera*, or wheel-animalcules. The first present a widely varied appearance, and are the smallest form of life yet discovered; some of the class are only one three-thousandth of a line in extent; the largest do not exceed two-thirds of that area. The Ciliary process* is present in the smallest of these creatures, as well as in the larger animals and in man; and is, in the one as in the other, the agency through which are performed many of the most important functions of life. The digestive organs of the *Polygastria* are several connecting stomachs; the food is impelled towards the mouth by currents produced in the water by the motions of the cilia, and aëration is effected by the same means; reproduction takes place by means of spontaneous division, each part thrown off by the parent stem becoming a perfect body.† Some of the species are free in their movements throughout their existence, while others become fixed in a certain spot after they attain a degree of life; they never seem to rest, and present no decided nervous system, although the presence of a visual point would seem to indicate a nervous centre.

In the *Rotifera* the organs of digestion are less numerous and more fully developed, and reproduction is not accomplished or fissuration, for in this class some are oviparous, some viviparous; their motion is ciliary, and aëration results from the introduction of water through several neck apertures, as in some varieties of fishes. They possess indications of a nervous centre, and retain vitality for years, even when seemingly a mere dry dust. They suffer from sudden changes in temperature, although they exist in the extreme of heat or cold, if native to it.‡ Atmospheric air is necessary to their existence. Fresh water species die if sea water be suddenly poured upon them, but survive a gradual mixture; light is favourable, but not necessary to life, which endures from a few hours to three or four weeks. They decompose rapidly, and wholly disappear, save where they have siliceous cases, as in the species whose remains com-

* The Cilia are placed like hairs upon a round projection of the body, like a head, and have a rapid, vibratory motion, describing a circle, as in the wheel-animalcules; in some species of the *Polygastria* they are separate and independent, or scattered over the body.

† Vide Mantell on Animalcules, p. 77, and Professor Owen's Hunterian Lecture for 1843, p. 40.

‡ Vide experiments by Ehrenberg and Doyère.

pose the Bilin slate. They sometimes exist in interior portions of animal bodies, as the *trichina* in flesh, and the parasites in the blood of the frog and salmon; according to Nordmann, worms are sometimes found in the eyes of fishes which exist by suction.

The number of sea animalcules is immense, and of a character infinitely varied. Humboldt says of them, that the application of the microscope increases in the most striking manner our impressions of the rich luxuriance of animal life in the ocean, and reveals to the astonished senses a consciousness of the universality of life. In the oceanic depths, far exceeding the height of our loftiest mountain chains, every stratum of water is animated with polygastric sea-worms, cyclidiæ, and aphrydinæ. The waters swarm with countless hosts of small luminiferous animalcules, mammaria (of the order of *acalephæ*), crustacea, peridinea, and circling nereides, which, when attracted to the surface by peculiar meteorological conditions, convert every wave into a foaming band of flashing light. The abundance of these marine animalcules, and the animal matter yielded by their rapid decomposition, are so vast, that the sea-water itself becomes a nutrient fluid to many of the larger animals.*

In the polar regions, where fuller life can no longer exist, there is an uninterrupted development of the microscopic, which exhibits an abundance of unknown, and frequently most beautiful forms. Even in water from melted ice, obtained in the latitude $70^{\circ} 10'$, there were observed more than fifty varieties of *polygastria* and *coscinodiscæ*, with their green ovaries, which had thus proved their ability to resist the severity of the extreme cold.† The excess of ocean microscopies already known are siliceous, but the vast extent of water is instinct with life, which bears no mark of siliceous filaments.‡ On the earth vegetable life predominates, which seems, in a great degree, dependent upon light for its medium of existence, but the ocean mid-nights teem with animal beings, whose size falls below the thirty-sixth thousandth of an inch, but which are capable of reproducing their species at the rate of millions in a few weeks.

* *Vide* Cosmos, vol. 1; Physical Geography.

† Capt. James Ross' Antarctic Expedition.

‡ *Vide* Ehrenberg's Treatise, *Ueber das kleinste Leben in Ocean*, read before the Academy of Science at Berlin, May 9, 1844.

These sea animalcules and algæ not only illuminate the surface of the water, but they also colour it in distinct hues. The observations of Ehrenberg, Dupont, and Montaigne, prove that the waters of the Red Sea are, at certain periods, coloured by the development of microscopic algæ; those of the genera *nostæ* exhibit such singular spontaneous movements, that it has been a mooted question whether they belong to the vegetable or the animal kingdom; they consist of a gelatinous mass, enclosing multitudes of short, rigid filaments, in colour dark or bright green, as in some Irish lakes, and brownish-red, as in the Red Sea. Ancient geographers attributed the colour of the latter waters to a peculiar reflection of light from the surrounding mountains; and also to the transparency of the waters, which renders visible the coral reefs below.

In 1854, M. Mollien observed that the Chinese Sea was coloured yellow and red in dispersed patches. The red colour was most frequent in that part of the sea south of the island of Formosa; the yellow to the north of that place. Specimens of this water, examined in France by M. Dareste, under the microscope, exhibited a deposit of a brown colour, composed of minute algæ, more or less decomposed.

The same author* records a curious description of a shower of sand, which fell at Shanghai in 1846. According to Mr. Piddington, Curator of the Museum of Economic Geology of India, it was of an olive-green colour, the grains adhering and mixed with hairy filaments, black, white, and brown, with a few reddish spicules, and grains of quartzose, transparent sand. By strong chemical test this dust was found to contain fine animal fibres, with a few grains of quartz, and impregnated with carbonate of soda; but the microscope revealed vegetable substance in the fibres, proving that they were *confervæ*. A close examination of the Sirocco dust, which fell at Genoa in the same year, contained two species of animalcules; one abundant in Africa, the other in South America. These infusorial, or dust-rains are of not infrequent occurrence; the most noted are specified by Ehrenberg in his essay on that subject.†

The red snow of Aristotle,‡ seen by him upon the mountains of Macedonia, was probably coloured by the microscopic

* M. Mollien.

† "Passat-Staub und Blut-regen."

‡ Aristotle, *Hist. Anim.* xxix, p. 552.

Discerea nivalis, which exists even in polar snows. A fall of red snow, which was observed in the Paster valley, in the Tyrol, in March, 1847, contained twenty-two species of infusoria, and an insect of considerable size, together with some thirty different organisms. Red hail was seen by Humboldt in Paramo, between Bogota and Papayan, at an altitude of fourteen thousand seven hundred feet. A red mist which began at Sacarno, near Lago Maggiore, on the morning of October 14, 1755, increased towards the afternoon to a heavy fall of red rain (*blut-regen*), covering an area of forty square miles. At the same time a red snow-storm occurred on the Alps. In 1623, a shower of blood-rain fell at Strasburg, and in 1222 a similar phenomenon was noticed at Rome. Chrenberg records, in all, three hundred and forty showers of blood and dust rain; eighty-one of which fell before the Christian era, commencing with the plague of blood in Egypt, fourteen hundred and ninety-one B. C., and two hundred and fifty-nine A. C.*

The family of animaleules, named by Ehrenberg the *Diatomaceæ*, appearing wherever organic matter affords the necessary sustenance for the first degree of life, are instinct with motion, while their siliceous structure seems to ally them to the mineral world. The botanist refused them admission to his system on the ground of their non-possession of plant-like attributes, while the geologist readily placed them there. They are found in water, on the sea-shore, in the shallow pools at the deltas of rivers, and upon the stones in mountain streams. The hard and endurable nature of their cases renders them almost indestructible, and these appear where the living animal no longer exists. Vast geological tracts, formed of their remains, indicate that the sea once covered their area; they are found in Bohemia, Italy, Sweden, and the United States. The cities of Richmond and Petersburg, Virginia, are said to be built upon strata of this deposit eighteen feet thick.† There is also a bed of this siliceous earth, twenty feet deep, near Eusdorp, in Hanover.

Of like composition are the strata of white earth found in bogs and morasses, the bog-iron, and the Tripoli, or polishing slate of Bilin; the latter is fourteen feet in thickness, and one cubic inch contains forty-one hundred millions of these fossil animalcules.

* Edin. Phil. Jour., 1852.

† Vide Smith's Synopsis of the British Diatomaceæ.

Ehrenberg discovered beneath the city of Berlin a bed of living animalcules from twenty to sixty feet deep, and lying but fifteen feet below the surface; two thirds of the mass is alive, apparently sustained by moisture, and, in one quarter of the city, the safety of the buildings is endangered by their existence. There is said to be a similar bed at Newcastle, in England. The *Berg-mehl* (mountain-meal) of San Fiora, in Tuscany, is of the same nature. Immense deposits of *berg-mehl*, shells mingled with a still remaining portion of animal matter, exist in Sweden and Norway; this meal is said to be nutritious, and, in times of scarcity of food, is sometimes mixed with flour into bread. The chalk beds containing the remains of gigantic saurians, and an endless number of fossil corals and muscles, are composed of microscopic *polythalamia*, whose species are still present in the Northern and Baltic Seas. Guano is largely composed of these fossil remains.

Microscopic vision has laid bare to us the interior cellular structure of plants incessantly agitated by manifold currents,* and gyratory movements, the phenomena of endosmosis, nutrition, and growth—in a word, the never-ceasing action of life. Cavanilles, a Spanish botanist, measured even the degrees of growth in a blade of grass by microscopic agency. All plants have an elementary cellulose tissue, existing either as membrane or fibre.† A beautiful combination tissue is that of the *sphagnum*, or bog-moss, which consists of a fibre coiled spirally within a cell. If a small portion of this membrane, which is highly gelatinous, be softened by the action of water, it will dissolve, releasing the imprisoned spires, which gradually and gracefully uncurl. Fibre is made up of tough transparent tubes, tapering at the ends; it is the chief constituent of wood, causing its close-

* The common pond-weed (*potamogeton*), and the arrow-head (*sagittaria sagittifolia*), afford beautiful examples of cellular circulation; but the most perfect medium for its observation is the German water-plant *callianeria spiralis*, which grows under water, with long grass-like leaves and spiral stalks bearing female flowers, which float upon the surface. The male flowers, when about to open, separate themselves from the plant; and, as they rise to the surface, expand, and scatter their pollen over the female flowers. The leaves of this plant afford a beautiful microscopic view of the cellular circulation of vegetable organism.

† This marked difference between cellular tissue and woody fibre has been the means of determining to the cultivation of what natural production two ancient nations, separated by the breadth of the earth, chiefly devoted themselves; for the microscopic investigation of Egyptian mummy-cloths reveals the presence of flaxen fibre, while ancient Mexican specimens clearly show the elongated cells, or hairs, of cotton, which contract and twist in drying.

ness and hardness of grain. Some cells contain a woody or stony deposit, which grows with the cell, and eventually fills it, as the stones of various fruits. Another important deposit is the starch granule which plays a prime part in the nutrition of the plant that contains it, and of animals, when converted into food; as in the potato, the arrow-root, and the various grains. A very curious phenomenon in vegetable life is the presence of the needle-like crystals, or *raphides*, which exist in bulbous roots; a section cut from a hyacinth, lily, onion, or other liliaceous roots, will yield among its juice a number of these crystals. Fossil woods are interesting microscopic objects, for they prove the identity of the vernal vesture of the ancient earth with that most familiar to our eyes, showing that the same great classes still exist, although their peculiar species are no longer found upon the earth. The vegetable anatomy of mosses is comparatively little known, but very rich, on account of their general distribution over the face of the earth, and their position in important geological formations. Mosses and their congeners, lichens, fungi, and fuci, do not produce themselves by true seeds, as do the greater number of plants, but by minute cellular spores, as fine as dust, and generally quite invisible to the naked eye; the spores of ferns increase by sub-division.

The process of crystallization is revealed in all its beauty under the microscope; in salt, for instance, where the foundation can actually be observed;* and in alum, where the crystals are not less beautiful, but larger.

We shall not depart from our subject, if we consider briefly the crystalline formation, which is so general that it applies to the mass of labratorial substances; a careful study of its various appearances has produced a systematic classification. A superficial observation of the outward surface of the most of the minerals does not suggest any idea of a regular interior formation; but close investigation, even without the aid of a microscope, proves that they assume special conformations, according to the various distinct classes to which they belong. A body of smooth or irregular exterior, presents,

* Crystals of the most elegant configuration are seen actually forming beneath the eye, the point advancing with a steady motion across the field of view, while from its sides branches start off continually, often exhibiting a resemblance to the most graceful foliage, or, still more strictly, to the frost-flowers upon the windows in winter.—*Notcutt*.

when broken, an interior aggregation of crystals of various magnitudes, some so minute as to be invisible to the naked eye. These crystals are often imbedded in solid masses, or are found in what are called nests; these nests can be separated with greater facility in some directions than in others, and this fact furnishes lapidaries with a knowledge which they apply to the division of various precious stones. A formal change is sometimes caused by difference in temperature; thus, a formation contracted at a high or low temperature falls to dust in a different degree of heat or cold; still, this dust, under a strong magnifier, reveals minute crystals of the original form. One of the most beautiful chemical results is the formation of *muricide*, composed of minute crystals of metallic green reflection, and affording a deep red colour by transmitted light; their solution is reddish-purple, changing to an intense blue, when acted upon by potash, and decolourised by mineral acid, depositing a pale, yellow, crystalline powder.

In the present stage of human progress, the various departments of science are daily becoming more closely cemented together, and nowhere is this great truth more fully exemplified than in the region of Physics. One principle of development is common to all organized bodies; the elements of vegetable life may seem to differ from those of the animal existence, but, in reality, they resemble each other closely, however much the forms may be diversified. This principle has been applied to important pathological processes by Müller and Heule. As plants vary only in externals, so all vascular systems consist of cells more or less fully developed; animal forms are more complex, but broad as seems the distinction between the nervous and muscular systems and the cellular tissue, if we retrace their development back through its manifold changes, we shall arrive at last at the simple cell; and that, indeed, closely analogous to the vegetable cell. In the latter, reproduction takes place in the already existing cell; the parent cell is absorbed and gradually lost in the form of its offspring. In animals the same growth of a cell within a cell is proved by eminent physiologists. Fluid cells are of isolated existence, as the lymph globules, and blood and mucous corpuscles; and independent cells gradually become united in continuous tissues, until the horny tissues and the crystalline lens are formed; where the cell-walls have coalesced, cartilage, bone, and the ivory of the teeth occur.

Cellular, fibrous, and elastic tissues consist of fibre cells; muscles, nerves, and capillary vessels, are formed where both the cell-walls and cell-cavities have coalesced.

No scientific department has so highly profited by the use of the microscope as that of physiology; although the latter derived much assistance from chemistry;* particularly in the composition of remedies, and in the establishment of many important facts, it failed to supply those instruments for minute investigation which lay bare the secrets of organizations. With the microscopic examination of the structure of plants, and of the lower animals, began a system of enquiry which is daily producing the most valuable results in connection with the study of the human frame and its functions. Its minute processes have revealed the presence of disease in tissues, nerves, and secretions, and instituted a theory of diagnosis before unknown. Successful treatment of disease can be approached only by first obtaining an accurate knowledge of it, even in its most minute particulars. Professor Kölliker, in the preface to his admirable work on microscopic research, says: "Medicine has arrived at such a stage that microscopical anatomy appears to form its foundation as much as the anatomy of the organs and systems; and a thorough study of physiology and pathological anatomy is impossible without the exact knowledge of the most minute formal elements."

The microscope was first applied to medical science in the year 1628 by Marcellus Malpighi, but no material advance was made in this direction until 1801, when Bichat issued his important histological work, *Anatomie Générale*. In this production the various tissues are treated fully and in detail, and their functions and relations clearly defined. After the year 1830, a rapid succession of valuable discoveries established the science of histology on a firm and acknowledged basis. In 1838, Dr. Th. Schwann fully investigated and explained the cellular system, and the development of the chemical condition of the tissues. Although this cellulose basis is adopted as the first foundation of matter, Kölliker is of the opinion that some parts of the body, the fibrinous exudations,

* The search for information regarding the medicinal virtues of various substances led to the study of chemistry and botany, and these pursuits in their turn forwarded investigation into the composition of organic matter, and its relation to the vital forces. The earliest record of this investigation has been found among Hindu and Arabic nations, by whom chemical pharmacy was practised, and legitimate prescriptions for the proper use of drugs were issued at an early period of the world's history.

for instance, undergo transformation into permanent tissues, without the intermediate cellular formation.

Our knowledge of the circulation of the blood has been greatly extended by microscopic manipulation; the existence of the capillaries determined, and the ciliary motion detected in the cuticle and the systems of respiration, alimentation, and reproduction. The bone examined with its aid exhibits its inner structure of membrane, cell, and circulating vessels; the cartilage yields the secret of its growth, which is absorption, like that of the cellular vegetables; the teeth reveal their columnar crystals of enamel—three thousand of which lie in a cubic inch, but which present a surface so hard as to strike fire with steel—and the delicate thread-like nerves which afford life to the part; the muscular system, with its whip-like cords and its almost invisible fibres, proclaims the unswerving and unceasing action of vitality; the skin no longer withholds the mystery of colour and texture;* and the eyes, perhaps the most perfect and beautiful human mechanism, afford another source of wonder and admiration to the student of nature. The eyes of insects are often very large in proportion to their bodies, and are composed of an immense number of facets, each one of which is a perfect eye in itself; the eye of the dragon-fly contains twelve thousand of these facets, and that of the *Mordella*, a species of beetle, more than twenty-five thousand!

The microscope has substantiated some curious facts in connection with miasmatic diseases. Organic tissues, and the organic products of animal and vegetable life, are characterized by a tendency to rapid decomposition, or an undue development of one or more of the four constituents of all organic matter, viz., carbon, hydrogen, oxygen, and nitrogen. This decomposition is generally effected by a physical agent, as heat, light, or electricity. Observations by Lewy show that the quantity of oxygen varies perceptibly both over sea and land. "Changes in the oxygen held in solution in the sea, produced by microscopic animal organisms, may be attended by alterations in the strata of air immediately in contact with it. The admixture of carbonate of ammonia in the atmosphere may probably be considered as older than the existence of organic beings on the surface of the earth. The sources from which carbonic acid may be yield-

* A thin layer of the cuticle of the negro, examined microscopically, reveals the cells wherein are deposited the colouring matters which impart to it its dusky hue.

ed to the atmosphere are most numerous. In the first place we would mention the respiration of animals, who receive the carbon which they exhale from vegetable food, whilst vegetables inhale it from the atmosphere; in the next place, carbon is supplied from the interior of the earth, in the vicinity of exhausted volcanoes and thermal springs, from the decomposition of a small quantity of carburetted hydrogen gas in the atmosphere, and from the electric discharges from clouds, which are of such frequent occurrence within the tropics. Besides these substances which we have considered as appertaining to the atmosphere, at all heights that are accessible to us, there are others accidentally mixed with them, especially near the ground, which sometimes, in the form of miasmatic and gaseous contagia, exercise a noxious influence on animal organization. Their chemical nature has not yet been ascertained by analysis; but from the consideration of the processes of decay which are perpetually going on in the animal and vegetable substances, with which the surface of our planet is covered, and judging from the analogies deduced from the domain of pathology, we are led to infer the existence of such noxious local admixtures. Ammoniacal and other nitrogenous vapours, sulphuretted hydrogen gas, and compounds analogous to the polybasic ternary and quaternary combinations of the vegetable kingdom, may produce miasmata, which, under various forms, may generate ague and typhus fevers. Fogs, which have a peculiar smell at some seasons of the year, remind us of these accidental admixtures in the lower strata of the atmosphere. Winds, and currents of air caused by the heating of the ground, carry up to a considerable elevation even solid substances reduced to a fine powder. The dust which darkens the air for an extended area, and falls on the Cape Verde Islands, to which Darwin has drawn attention, contains, according to Chrenberg's discovery, a host of siliceous shelled infusoria.* An impure condition of the atmosphere, caused by meteoric dust, or sand showers, is said, by McGowan, to continue for two or three days at a time in some parts of China.

It is not a new speculation that infusorial life, existing in the atmosphere, does, under some circumstances, act as a poison when brought in contact with the interior membranes of the human body. Kirchner first propounded this opinion;

* Humboldt's *Cosmos*, vol. 1.

Linnæus sanctioned it, and also Nyander, who wrote at length upon this point. Sir Henry Holland, after citing proof in cases of the effect of animal poisons on the skin and cellular tissue from without, admits the fact that cutaneous diseases generally arise from parasitic life; and records the discovery of fungous sporules in the eruption caused by ringworm of the scalp. At a meeting of the Polytechnic Association of the American Institute, held early in November last, Dr. Van der Weyd reported that a European investigation had recently discovered the growth of minute mushrooms, or more properly, fungi, upon the tympanum of the ear; the gentleman then remarked the existence of *trichina*, and the parasite which causes the itch in the skin, and asserted the theory that the majority of diseases had a similar origin.* Dr. Henle, of Berlin, maintains the opinion that the material of contagious diseases is not merely organic, but matter possessing the condition of parasitic life as regards the bodies affected by it.†

Take, for instance, the epidemic of the Asiatic Cholera, which, appearing first on the Ganges, within a period of seventeen years spread itself over the entire earth. Irregular in time and mode of appearance, but everywhere leaving some connecting trace; everywhere identical in character, differing only in degree, preceded by no known physical or atmospheric change; without proof of production by any gaseous, mineral, or vegetable matter diffused through the air, for it prevails under widely different atmospheric and physical conditions; without one substantiated theory applying to habit, food, or temperament—for, bear in mind, it has only been in existence for a little over half a century—every hypothesis yet concerning it has been a negative one. May not invisible, animalcular life, diffused by contact or by transmission through the air, impalpable to our senses, yet capable of diffusion and propagation, act fatally on human life? “A migrating malaria, a wandering cause of disease,” it must be produced by some agency capable of reproducing itself. What possesses that power save animal or vegetable life? The latter is, to a great extent, stationary, while the former is governed by no prescribed limit. It is true that, during the prevalence of the disease in Philadelphia, in 1832, and in Berlin, in 1848, a vegetable

* Report, published November 3, 1867.

† “*Von den Miasmen und Contagien*,” 1840.

mould, of a bright red colour, tainted farinaceous food; but does this invariably occur when the disease exists?

Let us now, following Holland's hypothesis, trace the anomalies between the spreading of this contagion and some of the well-known movements of insect life. The disease appears, perhaps, in an insulated town or village, apparently apart from any connection with a previously affected locality, or, perhaps, in a crowded city; at first a few cases occur, generally fatal, then a wide and fearful prevalence of the contagion, for perhaps two or three weeks, and then a gradual decline. These conditions are far from incongruous with those of insect life, which suddenly appears and rapidly multiplies, and as suddenly disappears, sometimes by continuous flight, sometimes by unequal and broken progress. The disease sometimes stretches over considerable extents of country, but is more frequently confined to special localities; and occasionally prevails in the face of an opposing wind, which would be impossible to mere inorganic matter.*

ART. V.—1. *History of the Venetian Republic; her Rise, her Greatness, and her Civilization.* By W. CAREW HAZLITT, of the Inner Temple. 4 vols. 8vo. London, 1860.

2. *Histoire de la République de Venise.* Par P. DARU, de l'Académie Française.

3. *Memorie Venete di GIOVANNI GALLICCIOLI*, prete per la nuova Collegione di documenti per scrivere alla storia Veneziana. Venezia.

4. *Raccolta Cronologico—ragionata di documenti nediti, che formano la storia diplomatica della rivoluzione e caduta della Repubblica di Venezia*, corredata di critiche osservazioni. 2 vols. 4to. Venezia.

A CURSORY glance at the history of nations which were once great but no longer exist, makes their destinies seem mysterious and inscrutable; but a careful and intelligent ex-

* "The Hessian fly, on its first appearance in America, early in the present century, afforded a singular example of this slow, progressive movement. The appearance and spread of the *Blatta orientalis*, in Northern Europe, is another similar fact. We are all familiar with the history, wonderful and incomprehensible though it be, of those vast swarms of insect life which suddenly appear at undefined periods of time, sweeping over wide tracts of country, and marking their course by the devastation they inflict. The locust swarms and migrations furnish the most remarkable example of this phenomenon."

amination shows that nothing of any moment has happened to them which was not the result of natural causes, or which might not have been foreseen by the statesman and the philosopher. Among all the nations of antiquity we do not find a single exception to this. There is not one whose fate had not been predicted in the midst of its prosperity and greatness by its calm and dispassionate thinkers. This is true alike of Egypt and Assyria, Tyre and Sidon, Greece and Rome.

But those who have either the courage or the foresight to warn their fellow-countrymen are always in the minority; if their voice is heard at all, it is only to be scoffed at, or their lives may be the penalty of their rashness. Even Pericles had but a narrow escape for warning the Athenians against making themselves the tools of demagogues, who, under pretence of protecting their liberties, would enslave them; although he had lain but a short time in his grave when his predictions were but too literally realized.

The fate of Athens itself does not teach us so instructive a lesson as that of Venice. Of all governments that have ever existed, the Venetian Republic affords the most striking illustrations of the influence of freedom and despotism on the character and destiny of the governed. As long as the Venetians enjoyed legitimate freedom they continued to increase in prosperity and civilization to an extent that made their condition the envy of all other nations; but the moment they were induced to surrender the last vestiges of their liberties to the representations of a designing oligarchy, their decline as a nation commenced. Gradually but steadily the glory of the Republic was turned into infamy; so that finally when their despotism came to an inglorious end, no true friend of liberty, humanity, or civilization regretted its fall. From one end of Europe to the other the sentiment of the poet was echoed:

"Mourn not for Venice—let her rest
In ruin 'mong those States unblest,
Beneath whose gilded hoofs of pride
Where'er they trampled freedom died."

That this should have been the destiny of a State that had once been so heroic, good, and great, and to which civilization owed so much, would be a painful reflection to the moralist as well as the philosopher did it not afford an illustration of retribution which cannot fail to serve sooner or later as a salutary warning to other nations. Thus far no re-

public has profited by the fate of Venice, with, perhaps, the sole exception of that of Switzerland. There are none, indeed, who have not heard of the Venetian Republic, but the almost universal impression is that it was always an oligarchy which had no just claim to the character of a republic. It is generally forgotten that it was once as free a republic as ever existed anywhere, and that it had flourished for nearly ten centuries before it came into the hands of the oligarchy, who rendered it an object of terror to its own citizens and of hatred and scorn to every enlightened nation. We shall see as we proceed that "Select Committees," invested with extraordinary powers for particular purposes, proved the ruin of Venice; thus it was that the famous, or rather infamous, Council of Ten was brought into existence, which only ended its oppressive and odious rule with the downfall of the Republic. Hence it is that none who have carefully studied the history of Venice have condemned Napoleon for having put an end to that despotism in 1795. A large proportion of the Venetians themselves were glad to see the end of a domination—

" —subtle, invisible,
And universal as the air they breathed;
A power that never slumbered, never pardoned,
All eye, all ear, nowhere and everywhere."

The great mistake is, that it was by tyranny of this kind the Tyre of the middle ages was enabled to conquer Constantinople, and to reign triumphant for centuries over Dalmatia, Cyprus, Candia, Corfu, and the Morea, as well as over that large tract of Italian territory extending from the Po to the Alps, and from the Adda to the Adriatic, the whole constituting about the three-eighth part of the Roman Empire. Let none believe that the Venetians were oppressed when they accomplished all this; on the contrary, they were the freest people of their time. And that they were an intelligent and orderly people, would have been sufficiently evident from the peaceful and thoughtful manner in which they conducted their elections. They were well acquainted with the ballot box; and no people used it more judiciously. This we shall see as we proceed; and if we do not learn a useful lesson from their ballot system, it is our own fault. The fact is, indeed, inconsistent with the theory that no people have ever exercised the elective franchise more thoughtfully than ourselves; but it is true, nevertheless.

Without giving the Venetians credit for so high an anti-

quity, or so glorious an origin as they claim for themselves—and their claims are supported by the most reliable of the ancient Roman historians*—all must admit that of all the moderns they were the first to form themselves into a regular society.† Venice owed its origin to a few fugitives, who sought shelter on the marshes and rocks of the Adriatic from the barbarities of the Goths. While Attila was spreading terror and ruin through northern Italy, these fugitives were quietly fortifying themselves on the small island of Rivus Altus, from which the celebrated bridge of the Rialto derives its name. It is certain that they had begun to prepare the way for their future greatness at the beginning of the fourth century. According to the most reliable authorities, they had a written democratic institution so early as 385 A. D.;‡ and the democracy established on this basis lasted for ten centuries, for it was not until the beginning of the fourteenth century that the government became an Aristocracy. Very soon after this change Venice began to decline; the government became gradually more and more oligarchial and tyrannical, until its iron rule was the byword of the world, and the terror of its own subjects.

The first inhabitants of the lagunes were governed by magistrates sent from Padua, which was also a Republic at this time (A. D. 420). M. Daru gives the names of these magistrates, and informs us that some of the principal Venetian families of the present day are descended from them.§ Padua continued to be the metropolis for about forty years (A. D. 460), until she was devastated by the incursions of the barbarians. Then the colonists had to take care of themselves; nor did they hesitate to establish a government of their own. They first adopted the tribunal system of the Romans; each of the little islands elected a tribune. These tribunes met together in the principal island, and formed themselves into a national council. For nearly fifty years this council constituted the whole government—legislative, executive, and judicial. Having been attacked by some of their neighbours, who had become rather jealous of their growing prosperity, the tribunes found it necessary to make a chief

* Vide Dion Cassius. *Hist. Romana*, lib. xxxix., p. 109 et seq. Livy, lib. i., § 1. Strabo, vol. i., p. 195. Cæsar, *De Bell. Gal.*, lib. iii., § 34.

† Nicolo Zuno, *Cronica de cose dai Veneti dalla prima origine della Città*. Saborinus. *Chronicon Venetum nunc, primum editum*, p. 9. *Cronaca Altinate*, lib. iii., p. 92.

‡ *Vite de Duchi*, p. 418 et seq. *Memorie Venete*, di Galliccioli, p. 24 et seq.

§ *Hist. de Venise*, Pièces Justif., sec. 6, vol. vii., p. 1.

of one of their number with the concurrence of the people (A. D. 503). It was soon feared that this chief or consul had too much power; and in order to obviate danger, ten were elected the next year instead of one, and two more were added a year or two later, so that every measure of any importance to the miniature State had to be discussed and decided upon by a jury of twelve chosen men.

This system continued for two hundred years, during which period the Republic made remarkable progress in all that contributes to civilization. The people had become so prosperous, intelligent, and happy, that large numbers from other States were constantly joining them; and it is needless to observe that this proved a powerful element in the increasing importance of the State. At the same time its political system had its defects. For the first hundred and fifty years the tribunes and national council constituted a government that gave general satisfaction. The people in general were comfortable; and there were but few who had accumulated so much wealth as to give them any corrupt influence. But towards the close of the sixth century commerce had made such progress, that many of those who had hitherto been humble shopkeepers became merchant princes, and, as such, they were ambitious to influence the government. This they had not much difficulty in doing, as the politicians had become so degenerate that they were actuated much more by the love of salaries and "perquisites" than by patriotism. It is easy to understand how readily dissensions and jealousies were thus created. The neighbouring states—which were also small, chiefly republics—soon availed themselves of this state of things, as calculated to facilitate the designs which they had long entertained against a people whose wealth and prosperity excited their envy. Now that the Venetians were divided into several factions, which were as bitterly opposed to each other as if they belonged to different nations, there seemed to be little difficulty in subduing them. They were, accordingly, attacked at different points. But this had the effect of inducing the Venetians to compromise their differences, at least for the time.

All parties joined for the defence of the Republic, and the first result of this general harmony and co-operation was the election of Paululio Anafesto (A. D. 697), a citizen distinguished for his courage, patriotism, and integrity.* The

* Hist. de la Rep. de Venise, par M. Galibert, ch. iii., p. 20; Hazlitt vol. i., p. 30.

chief object in his election was to place him at the head of the army of the Republic, as he had received a military education, and had proved himself a skilful and successful commander in a former war. Hence the title of the new chief was *Dux* (leader or commander), which in the Venetian dialect became *Doge*. Nearly all the historians of Venice agree that it was for the express purpose of excluding all idea of sovereignty or kingship that this purely military title was conferred on Anafesto. Be this as it may, he fully justified the confidence reposed in him as a commander; in a short time he put the enemies of the Republic to flight. Some think that his election entitled him to preside at the deliberations of the Council of Forty; whereas others maintain that this power was not bestowed upon him until after he had made himself popular by his brilliant victories.

The early history of the Republic is so obscure that it is impossible to speak positively on this subject without incurring the charge of recklessness; all that can be said, without going beyond the bounds of historic accuracy, is that whatever was the original design in his election, the Doge took a decided part in the administration of the government as soon as peace was restored. He became so popular that the National Council three times increased his powers and prerogatives, until finally it may be doubted whether any of the royal or imperial sovereigns of his time possessed more power over his own people.

All agree that Anafesto did not in any manner abuse his power. Yet there can be no question that the representative body was wrong in establishing such a precedent. The next Doge naturally expected to possess the same powers as his predecessor; nor was it deemed judicious to withhold them from him. It seems that he, too, exercised his powers only for the good of the State. Yet he was suspected and feared; strong jealousies were entertained against him by the National Council; but if he did not do much service to the State, he at least did not do it any harm. His successor was no ordinary man; he proved both a warrior and a statesman. He made war against the Lombards, the most powerful people of their time; he besieged them at Ravenna, which they had wrested from the Emperor of the East, reconquered the city and restored it to the Emperor, who as a reward for so much heroism and

sense of right granted to the Republic a large tract of land bordering on the Adriatic and extending to the Adige.

For the three hundred years the Republic had now been in existence, no individual had added so much to its territory, or contributed so much to its glory, as the Doge Orso; but his reward was assassination (A.D. 737).^{*} He was murdered in his palace for no other reason than that so great a general might do mischief, if he were not put out of the way. The deed was committed by the populace, but the real authors of it were the dominant faction in the Council of Forty, who thought that he stood too much in the way of their own ambition, and therefore excited the mob against him. In order to make it appear that they were actuated by patriotic motives, they passed a law that the Republic should be no longer endangered by a similar ruler, but that the chief magistrate should in future be elected yearly. The new functionary was styled *Maestro della Milizia*; he had but little power, and it does not appear that he did either good or harm. His successor was no better than he; indeed, so carefully was his power circumscribed, that even if his abilities had been of the highest order, it was impossible for him to exercise them to any considerable extent without being guilty of high treason. This the Council of Forty was forced to admit, and they passed a law increasing the powers and privileges of the *Maestro della Milizia*, but still requiring that he should only continue one year in office. The fifth of those annual magistrates was accused of having abused his increased powers, and he was not only deposed, but his eyes were put out (A. D. 742).

It is worthy of remark that the unhappy person who was thus dealt with was the chief of the faction in the Council of Forty who had incited the populace to murder the conqueror of the Lombards. It was almost universally admitted, not only that the former had deserved the punishment he received, but that the annual magistrates were much more dangerous and less useful to the Republic than the Doges; and accordingly a law was enacted restoring the latter. What the power of the Doges was at this time we learn from one of themselves. Donaldo, one of the earliest and most reliable of Venetian historians, informs us that "the Doges were invested with power of convoking assemblies; of declaring war, or concluding treaties; of com-

^{*} Harl. Mss., No. 4,820.

manding the armies of the state; of appointing the military tribunes and the judges; of hearing appeals, and deciding definitively on all matters at issue; of collecting the citizens in their different islands, and in the quarters or districts of Venice, for the purpose of choosing their parish priests and bishops; of judging all matters concerning the clergy, in causes as well civil as criminal, leaving to the Pope the decision of such only as were purely spiritual; lastly, of awarding ecclesiastical punishments, investing the bishops, and installing them in their churches.”*

If this is to be accepted as correct, it must be admitted that no sovereign of the middle ages, or indeed of any age, had more power than the Doge. But nearly all the historians inform us that it was those who had most power that did most good. The Council of Forty must have been of the same opinion, since they restored the doges after a trial of five annual magistrates, the last of whom was punished as we have seen. But the power of the doges was greatly modified from time to time, according to the caprice of the Council of Forty, who frequently deprived them of all power; so that the Doge has been described a king in purple, senator in the senate house, a prisoner in the city, and a mere private individual out of the city.†

That his position was not a very agreeable one may easily be inferred from almost any part of the history of Venice. Thus it appears that of forty-three who reigned in the course of three centuries, five were compelled to abdicate, three were assassinated by conspirators, nine were deposed by the senate, and deprived of sight or sent into exile, and one was sentenced to death by the same body for no graver crime than that he had become obnoxious to the dominant faction. It is not difficult to understand from this that the Doges frequently wished to resign, and that many citizens refused to accept the office. But in time it was made a “high crime and misdemeanor” to do one or the other. The government had, however, existed six centuries before the power of the Doge was seriously limited.

For nearly two centuries the Doges were allowed the privilege of associating their sons with them in the government; but at the beginning of the eleventh century this habit ceased. In 1832 Flabenico had to disclaim for himself and his successors

* Dandolo, apud Galliccioli Chron.—Daru, Hist., vol. i., p. 42.

† Rex in purpurâ, senator in curia, in urbe captivus, extra urbem privatus.

all right to associate any one in the government without the express permission of the Council of Forty. From this time forth the power of the Doge diminished from year to year, and it is worthy of remark that the power of the people diminished in an equal ratio. But there was this difference : while the Doges continued to form at least a nominal part of the Republic as long as it existed, the people ceased to have any more voice in the government than the subjects of the most despotic sovereign in the world.

What seems most incredible is, that it was the body corresponding with the British House of Commons and the American House of Representatives, called the Great Council, which thus gradually and insidiously destroyed the liberties of the people. This body was established in 1172 ; it consisted of 480 citizens equally selected from the six districts of the city, and annually renewed. The mode of their election was indirect. First the people elected two tribunes in each district, and the tribunes nominated the members of the Grand Council. The latter, like most other bodies, did very well for a time. They were empowered by law to appoint the Doge ; they had several other powers and privileges which they did not like to risk by depending on the voice of the people, and accordingly they soon declared themselves the fountain of all power. To prepare the way for this they passed a law declaring their right to name the tribunes, who were to appoint their successors ; they also claimed the right of confirming or rejecting their successors before resigning their functions ; so that the annual elections henceforth were but a farce. Of course there was no use in nominating any whom they did not approve ; and if the tribunes did not nominate themselves they were liable to dismissal. After a few years the tribunes were set aside altogether as a useless body ; then the people had not even the name of exercising the franchise. The Great Council entered into a compact with the Council of Forty, which was declared to be the substitute of the tribunes. The course of the Forty was to ballot on the names of the members who already belonged to that body, and whoever obtained twelve white balls was allowed to retain his seat ; any additional members required on account of death or rejection were selected by three electors appointed, not by the people, but by the Grand Council. The next step was to exclude from the Grand Council the representatives from the other cities of the Republic.

A small minority of the Great Council made some objection to this; but they were men who had some property on the mainland, and the result of their objections was, that a law was passed excluding from the Great Council all who owned lands on any part of the continent. This caused several expulsions; and when it was thought that the Great Council was properly constituted, another law was enacted which declared that all who did not belong to that body during the past year or the four preceding years, were forever excluded from it, and not themselves only but also their descendants. This curious law was passed in the eighth year of the reign of Pietro Gradinico, and is known in Venetian history as *La Serrar del Consiglio*. In one year after the promulgation of this decree (1319), elections of all kinds beyond the precincts of the hall of the Grand Council were declared abolished; and it was enacted that the son of every member whose father was dead, might take his seat in the Grand Council as soon as he attained the age of twenty-five. Those whose fathers died before they attained that age, were entitled to call for a ballot, if twenty or more; and, by this means, some thirty young men belonging to the nobility were annually added to the Grand Council. In order to reconcile the people to the loss of their political rights, theatres were established, to which they had free admission twice, three times, and sometimes four times a week; they had also free admission to concerts and several other kinds of amusement. Some families who were respectable, sufficiently so to belong to any branch of the Government, were allowed the privilege of dining annually with the Doge and shaking his hand; others had the privilege of receiving similar attentions from the supreme judges, &c.

The inhabitants of the larger islands were entitled to an annual visit from the Doge, accompanied by a deputation from the Great Council. This was made the occasion of a general carouse. Sometimes considerable sums of money were distributed among the crowd, on most occasions they were treated to magnificent suppers; so that the multitude were easily enough persuaded that it was as well for them to be enabled to enjoy themselves thus heartily from time to time as to spend their time at elections, which in the end would have been as much controlled by the rich as if the poor had not voted at all.

Besides the Great Council and the Council of Forty, several other bodies were established in the thirteenth century, but

they all owed their existence to the former body ; all were chosen by it, generally from its own body. The Senate formed a sort of intermediate body between the nobles and the executive, but its power was little more than nominal. Its chief duty was to ratify the laws passed by the Great Council ; but if any of its members refused to do this, or caused any disturbance by finding fault, they were liable to be cast into prison at any moment ; and those who were imprisoned were seldom seen afterwards. There were also the Forty Judges, and the College of Wisemen or *Savi* ; but both were completely under the control of the hereditary legislators. The Judges might administer justice as they thought proper, as long as their judgments did not come in collision with the prerogatives of the Great Council ; but this occurred whenever they attempted to punish any relatives of the councillors. No case could be brought before the Senate without being introduced by the College of Wisemen, which consisted of the Doge, the three chief judges of the criminal tribunal, and sixteen *Savi*. Six of the latter had the chief control, although the Doge was nominally the head of the College.

But the most despotic body of all was the Council of Ten. Our readers would do well to note how this originated. Although the people allowed themselves to be cajoled out of their liberties, they soon learned from experience that a great wrong had been done them. They made several attempts to recover their lost rights ; but they were immediately put down by the foreign troops maintained by their masters for that purpose. Large numbers of citizens were thus slaughtered ; others were secretly arrested, tried, and executed ; and the survivors were more oppressed than ever. During one of these insurrections (1310), a commission of ten members of the Great Council was appointed for the purpose of investigating the affair, and bringing the conspirators to justice. First, they were appointed only for fourteen days ; but they did so well during this time—put so many to death in various ways, and under various pretenses—that their time was extended to forty days. Even then the good work in which they were engaged was not half done, although they acted with abundant zeal and energy ; accordingly, the Great Council voted, by a large majority, that they might take as much time as they wanted ; and thus they continued to strike terror into all who dared to find fault with the hereditary legislators, until at length (A. D. 1335) their tribunal was declared perpetual.

It is well to bear in mind that the English and other monarchical historians of Venice have, in nine cases out of ten, sought to misrepresent the democratic system under which the Republic flourished for more than six centuries; and to extenuate, if not justify, the oppressive and tyrannical rule of the oligarchy, which, as we have seen, reduced the people to a state bordering on slavery. The most impartial of those historians is Hallam; but even he is rather favourable to the aristocracy, although he admits that the Council of Ten can hardly be regarded as a model in free States:

"This most remarkable part of the Venetian constitution consisted, in fact, of seventeen; comprising the Seignory, or the Doge and his six councillors, as well as the Ten, properly so called. They had by usage, if not by right, a controlling and dictatorial power over the Senate and other magistrates; rescinding their decisions, and sometimes treating separately with foreign princes. Their vast influence strengthened the executive government, of which they formed a part, and gave a vigor to its movements which the jealousy of the councils would possibly have impeded. But they are chiefly known as an arbitrary and inquisitorial tribunal, the standing tyranny of Venice. Excluding the old Council of Forty, not only from the investigation of treasonable charges, but of several other crimes of magnitude, they inquired, they judged, they punished, according to what they called reason of state. The public never penetrated the mystery of their proceedings; the accused was sometimes not heard, and never confronted with witnesses; the condemnation was secret as the inquiry; and the punishment undivulged, like both! The horrible and odious machinery of a police, the insidious spy, the stipendiary informer, unknown to the carelessness of feudal governments, found their natural soil in the Republic of Venice."—*Middle Ages*, by Henry Hallam, vol. i., p. 162.

Other English historians speak of those who deprived the citizens of all representation, as "Reformers." This is true, for example, of Mr. W. Carew Hazlitt, the most recent of all. Speaking of the privileges of the patricians, this gentleman tells us that "with all these advantages, and they were certainly great, the nobility felt that as a body *they had just reason to be dissatisfied* with the position which they occupied in society; and there were two great *constitutional abuses* which combined to produce this sentiment. The first was the *principle of Universal Suffrage*."^{*}

Further on Mr. Hazlitt speaks of the inconveniences and dangers of the Democratic system. "This condition of affairs," he adds, "was undoubtedly pregnant with evil; and it was such *evil* for which the advocates of *reform* were now anxious to provide an early and efficacious remedy."[†] It was not at all their own aggrandisement the oligarchy sought;

^{*} Hist. Venetian Republic, vol. i., p. 388.

[†] Ibid., p. 389.

they deprived the people of their rights, only because they were no use to them—nay, because they did them harm! And it was the same patriotic and disinterested motive that prompted them to reduce the Doge to the position of a mere puppet. “A second point,” says the new historian of Venice, “which bred bitter complaint among the upper class, was the extensive power which was lodged by the ducal prerogative in the hands of their chief magistrate, and which though certainly abridged to a considerable extent by the law of Flabenigo, was still too ample and concentric to find favor in the eyes of a proud and jealous aristocracy.”*

It was perfectly right, therefore, according to Mr. Hazlitt, to chain the Doge as well as the people. He tells us that the labours of the “Reformers” were finished in 1172, and that “they resulted, as might have been foreseen perhaps in some quarters, in an entire *reconstruction of the legislature* and the introduction of several important changes into the Executive.”† In the first place, the “pernicious system” of universal suffrage was abolished for ever. Thus the more power the oligarchy had to themselves, and the less opposition they had to encounter, the more complete was the reform! But the Venetian historians take a very different view of the case, especially those of the first rank; and the same is true of the French and German historians. The most reliable of all is M. Daru; no one has more fully investigated the whole subject than he; if, indeed, any other historian, native or foreign, has prepared himself so well for the task of writing the history of Venice. Be this as it may, it is certain that no other historian had such ample opportunities to ascertain the truth as far as it was possible to do so after the lapse of so many centuries. M. Daru had access to all the manuscripts, as well as printed documents secured by the French on the occupation of Venice at her downfall, in which were included many of the secret statutes of the oligarchy, and he was allowed similar privileges by the Austrian government. And what is the record that he presents us? It will be seen that a more atrocious government could not have existed anywhere than that initiated by Mr. Hazlitt’s “Reformers.” M. Daru has brought to light several of the statutes of the Council of Ten, and has proved them to be correct copies. But before we give any specimens of these, let us glance at M. Daru’s account of the circumstances which rendered such statutes possible.

* Hazlitt, vol. i., p. 390.

† Ibid.

After the oligarchy had completed their new constitution they elected a Doge; but he was called upon to agree to the following conditions: That in future the people should have no voice in the election of the Doge. That the Doge should henceforth have no power to choose his own counsellors, but that six individuals should be associated with him, who should form an integral part of the supreme magistracy, and without whose concurrence none of his decrees should be valid. That whenever he might require a larger number of counsellors he should not, as formerly, call in the assistance of those citizens whom he thought most capable of advising him, but should consult the Forty, to whom were to be added sixty other individuals from the Great Council. That *the people should no longer hold meetings*, but should delegate the exercise of all their rights to 480 citizens (the Great Council, or hereditary legislators), from whom should emanate every act relating to the sovereignty, &c.

It should be mentioned to the honour of the Doge who was elected under these conditions, that he refused to accept the office. The first Doge under the new constitution was Sebastiano Ziani (1173). He had always been in favour of disfranchising the people, believing that they should have no hand, directly or indirectly, in the government; and as his sentiments were well known he was by no means popular. But Ziani was at once wealthy and shrewd. The moment he received intimation that he was to be placed on the ducal throne, he had his name stamped on a large amount of gold and silver, which he threw to the crowds that rushed to see what the new Doge had to say. This had the desired effect; Ziani was carried in procession through the city amid the acclamations of the disfranchised people, and seated on a throne prepared for the occasion.

The enemies of republican government maintain that because Venice flourished for some time after this, her decline and fall must not be attributed to the change, forgetting that in this as well as in many other respects a state is very much like an individual, who on account of some important changes in his habits of life may contract a disease which, although it may continue latent for some time, is sure to kill him ultimately. It should be borne in mind besides that there was no real tyranny for long after this. Those used to freedom for centuries will not submit to be chained down at once; their fetters must be put on gradually.

But to return to the Council of Ten, which, as already remarked, was originated A. D. 1310. One of its first acts was to render it a capital crime on the part of a Venetian to enter into the service of any foreign prince, and to confiscate the property of those who withdrew their allegiance from the Republic. The reason of these laws is sufficiently obvious, if indeed such tyrannical edicts can be said to have any reason in them. Many of the citizens who were not fortunate enough to belong to the privileged class, soon learned that they had no great inducement to remain in Venice; large numbers withdrew accordingly; and in order to put an end to an emigration which could not fail to prove the ruin of the Republic, the oppressed were obliged to suffer on, or subject themselves to still worse evils.

Yet the treatment which the Venetians received was mild and gentle compared to that to which the colonies and provinces of the Republic were subjected. This will be sufficiently understood from a specimen or two of the maxims of the celebrated Fra Paolo, drawn up by request of the Council of Ten, for their guidance. Speaking of the people of the colonies who evince any longing for liberty, he says that they should be treated like ferocious beasts; that they should be fed on dry bread, scourged, &c.* The rebels in the provinces, or those who are not willing to be "reconstructed" according to the reformed plan, are to be treated somewhat differently; they are to be disposed of on a larger scale; whole cities are to be deprived of their municipal privileges; their inhabitants are to be so impoverished that they must sell their goods, and so give the Venetians an opportunity of making cheap purchases which will increase their wealth. If certain members of the municipal councils prove inconveniently bold, or too much devoted to the people, they must be gained over at any price. If this cannot be done, they must be exterminated under one pretext or other, but the ordinary forms of justice must be dispensed with. Poison may be made to perform the work of the hangman, &c.†

* Il faut les traiter comme des animaux féroces, les rogner les dents, et les griffes, les humilier souvent, surtout leur ôter les occasions de s'aguerir. Du pain et le bâton, voilà ce qu'il leur faut; gardons l'humanité pour une meilleure occasion."

† Tendre à dépouiller les villes de leurs privilèges, faire que les habitants s'appauvrissent, et que leurs biens soient achetés par les Vénétien. Ceux qui, dans les conseils municipaux, se montreront ou plus audacieux ou plus dévoués aux intérêts de la population, il faut les perdre ou les gagner à quelque prix que ce soit : enfin, s'il se trouve dans les provinces quelques chefs de parti, il faut les exterminer sous un prétexte quelconque, mais en évitant de recourir à la justice ordinaire. Que le poison fasse l'office de bourreau, cela est moins odieux et beaucoup plus profitable."

It seems difficult to believe that any government would act on such atrocious precepts as these, but there can be no question that they were literally enforced by the Council of Ten. Many cases might be adduced in proof of the fact, but one or two will suffice. The course pursued towards Novello de Carrara, Prince of Padua, is but too well known, for it has afforded several poets subjects for tragedies. For many years Carrara maintained a war against the superior power of Venice with distinguished heroism and ability. After enduring a long siege he was finally forced to surrender, in order to save the city and its inhabitants from destruction. The Venetian *Procreditori*, who always attended the armies of the Republic to watch the movements of the generals, and report any want of zeal or lack of courage which they might evince in their campaigns, declared to the Prince that they had no power to treat with him; they informed him that his best course was to deliver the keys of the city into their hands, and then go and negotiate in person with the Senate. Relying on their assurances, and a safe conduct which they furnished him, he at once embarked for Venice, taking one of his sons with him. In due time they were admitted to an audience of the Senate, when they threw themselves on their knees, and entreated the mercy of the Republic. The Doge, raising them encouragingly, placed one on each side of him, and reminded them, but without bitterness, of the benefits which his predecessors had conferred on their house, and of the ungrateful return which they made. The ingratitude of the Prince simply consisted in his having attempted to render himself and his people independent of Venice. His only reply, however, was to implore the clemency of the Senate, for he well knew what a cruel enemy he had to deal with.

Both the Doge and the Senate had no other idea than to treat the Prince and his son as prisoners of war. With this view they appointed a commission to determine the place of their confinement. But the Council of Ten took the case into their own hands, maintaining that, for enemies so dangerous by their talents and valour, the only safe prison was the tomb. When the father and son were brought to their dungeon, they were permitted to see another member of their family—Francesco's eldest son, of whose fate they had hitherto been ignorant since his arrest.

After remaining some days in this miserable abode, the Prince was suddenly called upon to prepare for death. A

priest came to give him the consolation of religion; having confessed him, he was called upon to withdraw. He had scarcely left when two of the Council of Ten entered the dungeon, accompanied by their executioners. Novello determined, with characteristic bravery, to sell his life as dearly as possible, seized a wooden stool, the only article of furniture in his dungeon, and rushed upon his murderers. After a desperate struggle he was overpowered, and strangled with the strings of a cross-bow. The two sons knew nothing of this, but they were put to death themselves next day.*

But it was not alone those prisoners of war who might do them mischief at a future day† they put to death in this way; they often pursued the same course towards the commanders of the forces of the Republic. Francesco Carmagnola was one of the greatest captains of the middle ages. Not only had he gained many brilliant victories for the Republic, but added to her territories the finest plains of Lombardy. But because he could not always defeat those who disputed the rule of Venice, his fate was sealed, on the ground that he was not faithful to the Republic. He was invited to the capital to confer with the Senate on the restoration of peace. Although well aware of the unscrupulous character of those he had to deal with, he did not hesitate to obey, because he knew he had done his duty. Lest he might apprehend danger, arrangements were made to do him honour along the whole route. On reaching Venice he was introduced into the ducal palace, but his attendants were advised to retire, as he would have to dine with the Doge (Foscari) and also have an interview with the Senate. This seemed natural enough, and he made no objection; but he soon observed that every door he passed was carefully closed. When found inside he was told that the Doge was indisposed and could not see him. A door that communicated with the secret dungeons was opened; he objected that it was not the right way, that he had come in by a different door; but the officers insisted that it was the right door, at the same time seizing him and dragging him in, he exclaiming that he was lost. As there were so many who saw him enter it would not do to dispatch him in the usual way, with poison or the rope. There being no proof that he had been in any manner unfaithful to

* *Chroniche Veneziane*, p. 393. Harl. MSS., No. 5620. Hazlitt's Hist., vol. iii., ch. xxi.

† See Daru, vol. ii., p. 11.

his trust, he was put to the torture; it was in vain he pointed out the wounds he had received in the service of the Republic, and showed how much they aggravated the sufferings inflicted on him to force him to confess that he was guilty. Finally his tormentors proclaimed that he made such a confession, and in order to prevent him from denying it, or from exposing the atrocious conduct of the Council of Ten, he was conveyed to the place of execution with a gag in his mouth, May 3, 1432.*

The true cause of the fate of Carmagnolia was his fame and popularity as a general. The Doge was so much disgusted at the bloodthirsty conduct of the Inquisitors that he offered to resign, but was not permitted. Tyrants are generally timid, as well as jealous; the Council of Ten feared that Carmagnolia, although not a Venetian but a Piedmontese, might one day restore the popular government, and become its head himself. But, in order to understand this, it is necessary to bear in mind the treatment received by such of the Doges as seemed to have any sympathy for the people, or to whom any popular favour was evinced. No matter what service they did for the Republic, they were persecuted or put to death—often both; or if they could not with any semblance of justice be imprisoned, exiled, or put to death themselves, their sons or their near relatives were persecuted in their stead. The case of Francesco Foscari will serve as an illustration of this. The conquests of this Doge excited admiration throughout Europe; the Venetian people were dazzled with the splendour of his reputation. Whenever he appeared in public he was enthusiastically cheered; but no greater injury could have been done him. It was impossible to find any plausible pretext for attacking the Doge himself; but the Council wreaked its vengeance on his only son, Jacopo. He had previously lost three sons; this made him the more tenderly attached to the surviving one. But the latter was seized (1445) on the charge of having received presents of jewels from the Duke of Milan contrary to law, and dragged before the Council of Ten; his father was obliged to preside and witness the cruel tortures which forced him to admit having received the presents, and then to pronounce sentence of perpetual banishment upon him.†

* Hist. Veneta Secreta, p. 172. *Chroniche Veneziane*, p. 426. Hazlitt, vol. iv., ch. xxiii.

† "The Dogeressa, his mother, petitioned the Council of Ten, through the Doge, to be allowed to proceed to Trieste to take a last farewell of her child, but was refused."—*Hazlitt's Venice*, vol. iv., p. 202.

After he had wandered in exile for five years one of the Council was assassinated. For no better reason than that Jacopo had cause to detest the oppressors of himself and his father, he was suspected of the murder. He was seized at Treviso by the secret emissaries of the Republic and brought to the capital. Again he was subjected to the most frightful torture, which his unhappy father was compelled to witness. No evidence could be adduced to show that Jacopo had any hand in the murder; nor could any amount of torture force him to admit that he knew anything of it. He was again sentenced to banishment, however; the place of his new exile was one of the most distant of the colonies. He was not long in his new abode of misery when the real assassin confessed in his dying hour that it was he who did the deed. But this did Jacopo no good, although he implored to be allowed at least to visit his aged father and his wife. Finding all hope in vain, he wrote to the Duke of Milan begging him to intercede with the Senate in his behalf. This was "a high crime and misdemeanor" in itself, and accordingly Jacopo was seized once more and brought a prisoner to Venice. For the third time he was tortured before the eyes of his father; it was in vain he declared that he wrote the letter in despair, hoping that at the worst it would enable him to get a last sight of his aged parents and of his wife, who was prevented from sharing his exile.* Again he was sent into exile with his joints almost dislocated by the cruel torture to which he was subjected; but this time he had scarcely arrived at his destination when death put an end to his sufferings.

Twice his wretched father begged to abdicate a dignity which had been the cause of so much misery to himself and his family; but the Council of Ten refused to gratify him thus far, still waiting for an opportunity to satiate their hatred. He was eighty-six years of age when he heard of the death of Jacopo; his grief was so great that he was no longer capa-

* Even Hazlitt, who is everywhere the apologist and champion of the Council of Ten, is obliged to admit that the last meeting between the wretched Jacopo and his still more wretched family, was heart-rending. "The agonized countenances," he says, "the tears, the sobs, were absolutely melting; and the final meeting between the two Foscari is described by Giorgio Dolfin, a kinsman of his family and an eye-witness, as having been sublimely pathetic. 'Father,' cried Jacopo, 'I beseech thee to procure me leave to return to my house!' 'Jacopo,' rejoined the other, 'go, obey the will of the country (*La Terra*), and seek nothing beyond.' But the painful exertion which it had cost the old Doge to command his feelings had a quick reaction."—*History of Venice*, vol. iv., p. 219.

ble of discharging the vain ceremonial of his office. While thus tottering on the brink of the grave, Jacopo Loredano, one of his bitterest enemies, who was now a member of the Council of Ten, proposed that he should be deposed, as no longer capable of performing his duties. The heart-broken old man protested that it was contrary to the Constitution to depose him merely for being old and infirm; but in vain. He was ordered to retire privately from the palace; but he insisted on quitting it publicly by the great staircase on which he had been solemnly installed thirty-four years before. Leaning on his staff the old man descended from the palace, while the multitude shed tears at their inability to save him from such humiliation, overawed as they were by mercenary troops that only waited for the signal to slaughter them. The old man had scarcely reached his residence when the bell of St. Mark announced by a merry peal the election of his successor. But he was unequal to the shock which this gave him; the agitation produced the rupture of a blood-vessel, which caused his death almost instantaneously.* It is not strange that the people mourned his death; and perhaps it is still less strange from the facts already stated that a decree of the Council of Ten forbade them, on pain of death, from speaking in public or private of either of the two Foscari.†

Such were the Venetian Radicals of the fifteenth century; but they had not yet brought their system to perfection. They thought the enemies of the Republic were still too leniently dealt with; and that accordingly there was too much "disloyalty." The Council of Ten pledged their "sacred honour" to exterminate the disloyal. But how was this to be done? They could not admit into their tribunal persons who might betray them; the Council was too large already, but it would not be just to diminish it, since all the members had done their duty so well. Finally it was agreed upon to appoint three members of the Council, Inquisitors of State (1544). The power of these Inquisitors was to be supreme; and they were to render no account whatever of

* When the death of the Doge was announced the Council of Ten made arrangements to honour him with the usual rites of sepulture. His wife (the Dogaresa Nani) objected that "it was a tardy atonement for passed wrongs," &c.; but what the Council of Ten willed should be done. The corpse of Foscari was seized and enveloped in the ducal robes on which he had conferred so much lustre and glory in his life, but of which he had been stripped only a few days previously, for the crime of having grown old and feeble in the service of the Republic!—*Harlall*, vol. c., xxiv.

† *Memorie Veneti*, p. 420.

their doings. All their functions were to be performed in secret; their jurisdiction embraced all ranks and condition, including the Doge, the Senate, the ecclesiastics of all grades, not excepting the Pope's nuncio. To none but the Council of Ten was any of these Inquisitors known; neither prisoners nor witnesses were ever permitted to see them. No summons which they issued bore their own names, but that of the President of the Council of Ten.

Torture was the means which they chiefly relied upon to elicit information; and after the victim was forced to give evidence against himself, the Inquisitors were empowered to execute him at night and in private, the general mode of death being drowning in the Canal of Orfano. Another decree provided that if any one, whether noble, ecclesiastic, or plebeian, presumed to make comment on what was done in this way, he should be warned twice, and then if he persisted drowned as incorrigible.* M. Daru was the first who brought to light some of the atrocious statutes which authorized laws of this kind, and he has fully proved them to be authentic. Mr. Hazlitt and certain other admirers of the oligarchical system declare that those statutes are spurious, for no better reason than that they know nothing about them. They make no allowance for the superior learning, peculiar advantages, and indefatigable research of M. Daru. But although they reject the statutes, all record atrocities which illustrate even the worst of those statutes. There is no instance of tyranny, however cruel* or base, alluded to by us in this paper which is not recorded even by Mr. Hazlitt; but he always tries to show that the Council of Ten and the Inquisitors of State were actuated by the noblest motives, just as some other writers are trying to show at the present moment how noble and grand are the motives of a certain other Council which is also destined to attain a certain kind of fame. In summing up the evidence of the genuineness of the "reconstruction" statutes of the Council of Ten, collected from various sources, he makes the following remarks, which we prefer to give in his own language:

"Dans les recueils de la correspondance de la légation de France à Venise, existans aux archives des Affaires Etrangères, on trouve de temps en temps, parmi les pièces envoyées par les ambassadeurs, des extraits du

* One of the articles of this decree reads as follows:

"Le patricien qui se permettait le moindre propos contre le gouvernement, était admonété deux fois, et à la troisième noyé comme incorrigible."—(Art. 39.)

règlement de l'inquisition d'état. Ces extraits sont fort incomplets, mais, dans ce qu'ils contiennent, ils sont conformés aux statuts que nous publions. Tous ces extraits, toutes ces copies ont déjà plus d'un siècle d'existence; et cette conformité entre des copies qui n'ont pu être faites l'une sur l'autre, entre les citations du cavalier Soranzo et les extraits envoyés en divers temps par nos ambassadeurs, paraît démontrer l'authenticité de ces statuts."—*Hist. de la République de Venise*, vol. vi., p. 387.

Among these statutes was one which declared that there was no asylum in Venice for those suspected of being "disloyal." Neither priest, bishop, nor cardinal could save them from assassination even before the altar. If one, believed to sympathize with the inhabitants of the disfranchised cities or provinces of the Republic, sought refuge in the palace of an ambassador under circumstances that rendered it imprudent to arrest him, means were to be taken to stab or poison him. The ambassadors themselves were constantly watched; at least four spies were maintained about the residence of each; and these were instructed to procure all the information in their power from those in the service of the ambassador, freely bribing them when necessary. No Venetian could let a house to an ambassador, or to the Pope's nuncio, without permission from the Inquisitors, who would cause the house to be visited and carefully examined in order to ascertain whether it had any private communication with the surrounding dwellings. In addition to all these precautions, "lions' mouths" of iron were at every street corner, so that all who had any spite to gratify against their neighbours might convey their anonymous complaints to the Inquisitors. Then there were hosts of spies belonging to all classes; even prostitutes and thieves were thus employed; and this odious tribunal continued to exercise its atrocious functions until the overthrow of the Republic by the French.

One not sufficiently acquainted with the subject would naturally ask, Why did not the Church interfere to prevent such atrocities? But so it did, many a time. Several popes denounced Venice as a disgrace to Christianity; more than one Pope excommunicated the Republic, and declared its conduct infamous; whereas the popes were the best friends of the Venetians before the Council of Ten was established. As it is our wish to do justice to Catholic as well as Protestant, to Pope as well as President, we will pause here to take a brief glance at the relations between the Church and the Venetian Republic. When the Emperor, Frederick Barbarossa, sought to destroy all the republics of Italy, especially the free and heroic communities of Lombardy, their

friend and protector, Pope Alexander III., did all he could to save them. Being overpowered by the forces of Barbarossa, he sought an asylum in Venice, the Republic having then become illustrious by its successful wars against the Saracens, and its splendid conquests both in the East and the West. The Emperor indignantly demanded that the Pope should be delivered up to him. In reply, an army was sent under Sebastian Ziani, who defeated and put to flight the imperial forces, and destroyed forty-eight sail of the fleet sent to the Adriatic for the express purpose of forcing Venice to violate the rights of hospitality (A.D. 1172). When Ziani was returning with the trophies of his victories, the Pope accompanied the Senate to welcome home in a triumphant procession their victorious chieftain. After the enthusiasm which the arrival of Ziani under such circumstances had somewhat subsided, his Holiness addressed him as follows: "Ziani, take this ring and present it to the sea as a testimony of your dominion over it. Let your successors annually perform the same ceremony, that posterity may know your valour purchased such a prerogative, and subjected this element to you even as a bridegroom is husband and lord over the bride whom he has chosen." Be it remembered that there was no tyranny at this time, but that the Venetians were as free and happy as any people in Christendom. Subsequently when the Republic commenced the atrocious system which we have adverted to in the preceding pages, the favour of Alexander availed it nothing; the popes did all in their power to punish it. An instance or two will sufficiently illustrate this fact.

On the death of Azzo of Este, Marquis of Ferrara, his natural son, who had attempted to murder him, claimed his inheritance to the total exclusion of the rightful heir, the brother of the marquis; and because his mother was a native of Venice, the Republic recognized his claim to the marquisate, and his right to dispose of it as he thought proper, although the people of Ferrara indignantly protested against the usurpation. The new marquis was induced to sell Ferrara to the Republic for a thousand ducats, and an army was immediately sent to occupy the territory. Pope Clement V. sent two nuncios to Venice to protest against a proceeding so contrary to every principle of justice and morality; but the oligarchs dismissed them without the least satisfaction. Then the Pope issued a bull declaring the Republic *infamous to the fourth generation*; its

goods and possessions the lawful prey of the first takers, &c. The bull concluded by proclaiming that God would look with an approving eye on every act of hostility which should tend to blot the oligarchs and their posterity from the memory of mankind. This was very severe, but who will say in view of the atrocities we have noticed above, that it was too much so? The Republic paid no attention to the bull, further than to forbid all citizens of Venice, lay and ecclesiastical, from giving it publicity or noticing it in any way, on pain of death. This, however, did not save Ferrara, whose inhabitants rose *en masse*, drove out the Venetian mercenaries, and restored the rightful heir to his inheritance.

On another occasion the Pope, finding that excommunication had no effect on the tyrants of Venice, declared war against them; their first reply was to issue a decree, declaring that no quarter should be given to armed priests. Having taken an ecclesiastic prisoner soon after, on the shore of Agirelega, they condemned him to ride backwards on a mule, holding the tail for a bridle, preceded by the common crier, who proclaimed before him, "Behold the wicked priest who displeased God in his life, and was taken in iniquity," (A. D. 1274).

As we have already remarked, it is not one Pope, or two, or three, that sought to compel Venice, in one way or other, to have some regard for the claims of justice and humanity. But we must confine ourselves to one instance more. Passing over several centuries of atrocities, and many protests against the latter from the Vatican, we come to the time of Paul V., who attempted, in vain, to rescue several ecclesiastics from the dungeons of the Council of Ten. On the 17th of April, 1683, this pontiff issued a decree of excommunication against the Council of Ten, the Inquisition of State, and the Doge, which was to take effect in twenty-four hours, if the doomed prisoners were not delivered up to the Nuncio within that time. A large number of the clergy obeyed the Pope, at the risk of exciting the wrath of the Council of Ten; so many pursued this course that it would have been inconvenient to find prisons or racks for all; accordingly they were marched in procession out of the city by troops of soldiers, with a box, containing the eucharist, suspended from the neck of each.

Because *Fra Paolo*, better known as Sarpi, the infamous Secretary of the Council of Ten, is called a monk, some

well-meaning, but credulous and shallow, writers regard him as representing the Christian Church; whereas, if he had ever been a monk, he was a renegade of the worst kind, and one who detested the Pope. It is necessary to bear in mind that the representatives of the pontiff were the Cardinals Bellarmine and Baronius; while the champion of the Council of Ten was Sarpi; and whereas the former pleaded the cause of humanity and justice, the latter recommended such atrocious sentiments to his employers as the following:

"Un ouvrier de l'arsenal, un chef de ce qu'on appelle parmi les marins le menestranche, passait il au service d'une puissance étrangère: il fallait le faire assassiner, surtout si c'était un homme réputé brave et habile dans sa profession."—(*Art. 3, des Statuts.*)

Bossuet mentions as a matter of history that Calvin was not a more implacable enemy to the Catholic Church than Sarpi;* that he did all in his power to bring the mass into discredit; and that he exercised whatever influence he had to cause an entire separation between the Republic and the Church of Rome. In proof of the latter fact Bossuet quotes from Bedell, Protestant chaplain of the British embassy at Venice, who wrote to his friend Diodoti, inviting him to come to Venice; that they hoped to have a reformation there in a short time.† This may perhaps account for the good will of Mr. Hazlitt towards the Council of Ten and the Inquisitors, whom, as already remarked, he always regards as "Reformers."

As the decline of Venice increased, and her weakness became more and more apparent, the Council of Ten became less bold. The subjects of other states were treated with more caution; foreign ambassadors had ceased to be molested in their residences. But the Venetians themselves were oppressed nearly as much as ever. So late as 1755, Count Capucefalo, who had formerly been Consul at Zante, was put to death by the Inquisition, on the bare suspicion of having carried on a correspondence with the Austrian Ambassador. Finally, when the hour of danger arrived, no government could have acted with greater pusillanimity than the Council of Ten. It is true that the oligarchs remained haughty to the last. When the French Revolution broke out they had offers of alliance from the French and Austrians in turn, but they rejected each. A small French ship, which attempted to enter the lagunes

* If any further proof of this were necessary, it would be found in Sarpi's History of the Council of Trent (*Istoria del concilio Tridentino*). London, 1619.

† *Ecclesie Venetæ reformationem brevi speramus*—Bossuet, *Hist. des Variations*, i, 7.

contrary to the laws of the Republic, was violently attacked by the forts and destroyed. When the Inquisitors gave orders to fire on the single French ship, they were not aware that the French army was already in Italy. The Council of Ten sent deputies to Napoleon to explain and apologize; but he only replied by issuing a proclamation, calling on the city and province of Venice to shake off the authority of a government which had oppressed them for centuries. Both Venice and Padua seemed delighted to have an opportunity, and they lost no time in forming provisional municipalities. The Senate and Council of Ten became frightened, and suspended their deliberations. A *conferenza* was held in the private chamber of the Doge (April 30, 1797), but before they could come to any conclusion the news arrived that the French were preparing to attack the capital. The Council of Ten was seized with consternation, and several members proposed the immediate surrender of Venice. The proposition was referred to the Great Council, which unanimously agreed to it. On the same day (May 1, 1797) Napoleon issued a formal declaration of war against Venice. Deputies were sent to him, but he refused to listen to any negotiations until the destruction of the French ship and the assassination of the Frenchmen it contained had been avenged by the *death of the three Inquisitors of State*, and the commander who carried out their orders in sinking the French ship. In order that they might have time to deliberate on this proposition Napoleon granted them an armistice of five days; but only three days of the time had passed when the Great Council voted almost unanimously for the arrest and trial of the three Inquisitors of State and the commander, the Doge in the mean time offering to renounce the ducal dignity. The next step was to send away the 11,000 Slavonians originally brought to Venice, ostensibly for its defence against foreign foes, but really for the purpose of overawing the Venetians, so that they should not attempt to resist the atrocious decrees of their masters. Lest this might not be sufficiently satisfactory to Napoleon, all the forts in the capital and the lagunes were disarmed. All necessary preparations having thus been made the French armies quietly entered Venice. It need hardly be remarked that no government ever had a more inglorious end.

The people, the descendants of those who had set at defiance the armies of Charlemagne and of Pepin, and forced them to acknowledge their independence, had only to look

on with folded arms. It is a remarkable fact that those whose hands had been tied for centuries, and been treated little better than slaves, wept briny tears at this humiliation; while many of their oppressors were glad to enter the service of the conqueror, and, if they had the power, would have been as ruthless tyrants as ever. So much had all classes degenerated under such a régime, that of all the people conquered by Napoleon, he was most ready to get rid of the Venetians; and accordingly they were not quite three months under French rule when they were transferred to the House of Austria by the treaty of Campo Formio. No doubt the yoke of Austria has often been heavy; but it is certain that no Austrian governor has oppressed the Venetians so atrociously as their own Council of Ten.

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- ART. VI.—1. *On the Nebular Hypothesis.* By DANIEL KIRKWOOD, LL.D., Professor of Mathematics, Indiana State University. —*American Journal of Science and Arts*, for September, 1866, vol. xxx., New Series.
2. *On the Nebular Hypothesis.* By DAVID TROWBRIDGE, A. M.—*American Journal of Science and Arts*, for November, 1864, and January, 1865, vols. xxxviii. and xxxix.
3. *Introduction to the Mathematical Principles of the Nebular Theory, or Planetology.* By GUSTAVUS HINRICHS, Professor of Physics and Chemistry, Iowa State University.—*American Journal of Science and Arts*, for January, March, and May, 1865, vol. xxxix.
4. *The Origin of the Stars, and the Causes of their Motions and their Light.* By JACOB ENNIS, Principal of the Scientific and Classical Institute, Philadelphia. 1 vol., 12mo. New York.

THE human mind is continually seeking for the cause of those phenomena which nature presents unasked, as well as such as she reveals when subjected to experimental operations. As yet all causes are secondary to man; only for a short time does he feel satisfied with having discovered one which carries him a step nearer the first cause, be that what it may. It is easy for us to say that God is the Great First Cause; but the enquiring mind is not satisfied with thus summarily disposing of the question; it seeks to discover how the Great Mind of the Universe, through the operation of general prin-

ciples, produces the various phenomena of nature. The general result of human investigation tends to show that all known causes are but modifications of one great principle.

The true method of investigation is to arise from phenomena, to the causes which produce them. From a want of the knowledge of all the phenomena pertaining to any one thing, the principle which we deduce is not always the true one, and we are sometimes obliged to frame hypotheses to aid our investigations.

About the middle of the last century a few philosophers began to speculate on the phenomena of the solar system and the sidereal heavens; but it was not till Laplace and Sir William Herschel had carefully studied those phenomena that a hypothesis was framed which seemed to include nearly all the facts of the outward universe—the macrocosm—and bind them together. The former of these philosophers saw five principal facts of the solar system which could not be owing to chance, and he therefore concluded that they all had a similar origin, and were the result of a similar cause. The latter, from his observations on the structure and contents of the sidereal heavens, carried on for many years, concluded that there exists in many regions of the visible universe, a nebulous matter whose density is very small when compared with that of the earth, and out of this substance stellar clusters are formed by the forces of nature. The *Nebular Hypothesis* of to-day embraces both classes of facts, those of the solar system and of the sidereal heavens. Every new discovery in the physical universe, whose bearing can at present be seen, seems to give it additional strength.

The nebular hypothesis, or nebular theory, is based on the assumption that all physical matter was once in a gaseous state, and held in that condition by caloric. But being surrounded on all sides with space, either filled or empty, whose temperature was 50° or more (Fah.) below zero, radiation would go on, the gaseous substance would thus be cooled, and all the mutations consequent on such a change of conditions would follow. The nebular theory attempts to show that these mutations are the causes of the phenomena of nature, as they are observed in the material universe.

It is necessary to show, in the first place, that gaseous or nebulous matter exists unconnected with the earth or any of the planets. That the earth once possessed a very elevated temperature is rendered evident by geological investigations, and that the interior is still in a highly heated condi-

tion, is shown by the existence of hot springs, earthquakes, and active volcanoes. Not only so, but the figure of the earth shows that its present form could only have been attained by assuming it when it was in a fluid state, and under the free influence of all the forces acting upon it. Sir John Herschel, in his *Outlines of Astronomy*,* suggests that if the earth had originally been spherical, and covered with an ocean such as at present exists, upon its receiving a motion of rotation the action of the water would wear down the solid material, and transfer the débris to other parts till the conditions of equilibrium were attained. But an easy analytical investigation shows that the ellipticity of the earth would not be one-three-hundredth as it is now, but only one-four-hundredth. Thus the figure of the earth reveals its former fluid condition.

That nearly all comets, at least, are still in a gaseous state is a well-settled fact of astronomical science. The great comet of 1858 was subjected to a close scrutiny by some of the ablest observers with the best instruments in existence, but no evidence of solidity in any part of it could be perceived. Many indications of gaseous fluidity were to be seen. Changes in the envelopes surrounding the nucleus took place with great rapidity. The nucleus itself varied in size, as measured at different times—diminishing as the comet approached the sun, and for some time afterwards, as if it were a liquid and was evaporated by the intensity of the solar rays, and thrown off in the form of envelopes. Biela's comet at one time was seen to pass over a small cluster of stars of the sixteenth and seventeenth magnitude, and although fifty thousand miles thickness of cometic matter was between the observer and the stars, yet they still continued visible, notwithstanding the most trifling fog would have effaced them.†

The most conclusive evidence of the existence of nebulous matter, however, is that afforded by the *spectroscope*. Although scientists have not yet had an opportunity to subject the light of any of the great comets which occasionally appear to spectrum analysis, yet such as have been observed were found to have nuclei in the condition of a self-luminous gas.

In August, 1864, Dr. Huggins examined the light of a bright planetary nebula in Draco, with a spectroscope, and he found

* Art. 226, ed. of 1849. On the form of the earth, see Airy's *Mathematical Tracts*, Pratt's *Figure of the Earth*, and *Mécanique Céleste*.

† Grant's *Hist. of Phys. Astronomy*, pp. 293-4.

the spectrum to consist of three bright lines instead of being a continuous band of light of various colours like the spectra of the sun and fixed stars. Such a spectrum is formed by light from luminous gas, a part of which in this case seems to be hydrogen. Besides this an exceedingly faint spectrum was seen for a little distance on each side of the bright lines. Subsequent observations on other nebulae induced Dr. Huggins "to regard this faint spectrum as due to the solid or liquid matter of the nucleus."*

It is unnecessary to enter into any further details in relation to Dr. Huggins' observations on the spectra of the nebulae. Suffice it to say that many of the irresolvable nebulae were found to consist of luminous gas, some of them having a solid or liquid nucleus.†

It is a well-known fact that the fixed stars exist throughout the visible universe in separate clusters of greater or less extent; in short, that such a thing as an isolated fixed star is unknown. Those which we call isolated fixed stars, and which appear to us as such, really belong to the immense cluster known as the Milky Way, our sun being one of the number. The immense distance which separates us from the nearest fixed star (*Alpha Centauri*) gives us some idea of the immeasurable extent of interstellar spaces.

Observation shows us that all the principal fixed stars are not fixed, but have a proper motion, which is partly due to the motion of the solar system in space, and partly owing to their own independent motions.‡ It has not yet been proved that clusters have a proper motion as a whole; but the gravitation of material bodies renders it necessary that not only separate stars, but starry clusters and nebulae should be in motion to prevent their coming into collision. The components of binary, ternary, and multiple systems have a curvilinear motion around their common centre of gravity. What observation teaches us is true of the motion of these isolated systems, the science of mechanics teaches us *must* be true of the motion of the great system of the universe. Reason teaches us that there is a natural cause for the observed motion and arrangement of the contents of the sidereal heavens. What is that cause?

* See Amer. Jour. of Science, vol. xi. [2], pp 77-8.

† See "National Quarterly Review" for December 1867, pp. 107-108. The reader may also consult the American Journal of Science, vol. xl., pp. 77-81.

‡ Humboldt's Cosmos, vol. iii., p. 265.

Let us see what the solar system teaches in relation to this great cause. We find in the centre a luminary, immensely larger than any of the planets, around which, as the principal controlling body, the other members revolve. The primary planets revolve in the same direction, from west to east. The satellites, except those of Uranus, so far as known, revolve around their respective primaries from west to east. The primary planets, so far as known, rotate on their axis, from west to east. The secondaries rotate in the same direction, so far as observation has determined. The primary planets revolve in orbits, the planes of which have a small inclination to one another, and to the plane of the solar equator. The secondaries revolve in planes having a small inclination, so far as known, to the planes of the equator of their respective primaries. The sun rotates in the same direction as that in which the planets revolve around him. The distance between the planetary orbits gradually increases from the sun outwards. The planets increase in bulk, as a general thing, from Mercury to Jupiter; thence they decrease somewhat. The density of the planets increases from Mercury outward. The number of satellites belonging to each primary increases, as a general rule, from the sun outward. The time of rotation of the larger planets is much less than that of the smaller. A zone of very small planets (asteroids) exists between the orbits of Mars and Jupiter. Saturn is surrounded with several unbroken rings. The comets which visit the sun are not confined to a limited zone in the heavens, approximately coincident with that which contains the orbit of the planets, but their orbits have all inclinations to the ecliptic, from zero to ninety degrees; and the motion of some is direct, and that of others retrograde.

But any theory of the universe must not only explain the preceding facts, but it must also give a reason for the stability of the orbital motions of the planets, and of their axial rotations. In 1784, Laplace demonstrated the following beautiful theorems as applicable to our system, and insuring its stability: "If the mass of each planet be multiplied by the square of the eccentricity, and this product by the square root of the mean distance, the sum of these quantities will always retain the same magnitude." We learn from observation that for any particular epoch this "magnitude" is small. This theorem applies to the eccentricities. The other one has reference to the inclinations. "If the mass of

each planet be multiplied by the square of the tangent of the orbit's inclination to a fixed plane, and this product by the square root of the mean distance, the sum of such quantities will continue invariable."* Observation shows that the planets rotate around principal axes, which insures the stability of their rotations.

If the nebular hypothesis be a true theory of the universe, and there are still gaseous nebulae from which stars are formed within the range of telescopic vision, the spectro-scope ought to show them in the various stages of condensation from the purely gaseous to those which are almost starry in their structure. Our observations on the structure of nebulae are not so extensive as we could wish; but we will quote from Dr. Huggins, one of the principal authorities on this subject. The recent examination of the great nebula in *Orion* shows that this large and wonderful object belongs to the class of gaseous bodies. The light from this nebula resolves itself under the refractive power of the prism into the same three bright lines. With a narrow slit they appear exceedingly thin and well defined. The intervals between them are dark, and in the light from no part of this nebula was any indication detected of a continuous spectrum, such as is characteristic of incandescent solid or liquid matter. Different portions of this great nebulous mass were brought successively upon the slit, but the results of minute examination showed that the whole nebula emits light, which indicates a constitution identical throughout the body. The light from one part differs from that of another in intensity alone:

"According to Lord Rosse and Professor Bond, the brighter parts near the trapezium consist of clustering stars. If this be the true appearance of the nebula under great telescopic power, then these discrete points of light must indicate separate and probably denser portions of the gas, and that the whole nebula is to be regarded rather as a system of gaseous bodies than as an unbroken vaporous mass.

"If the gaseous matter of these objects represented the 'nebulous fluid,' out of which, according to the hypothesis of Sir William Herschel, stars are to be elaborated, we should expect a spectrum in which the groups of bright lines were as numerous as the dark lines due to absorption found in the spectra of the stars.

"If the three bright lines be supposed to indicate matter in its most primary forms, still we should expect to find in some of the nebulae, or in some parts of them, indications by a more complex spectrum, of an advance in the formation of the separate elementary bodies which exist in the sun and in the stars.

"A progressive formation of some kind is, however, suggested by the

* Mém. Acad. des Sciences, 1784.

presence in many of the nebulae of a nucleus, the spectrum of which indicates that it is not pure gas, but contains solid or liquid matter.

"It may, therefore, be that nebulae, which have little indication of resolvability, and yet give a *continuous* spectrum, such as the Great Nebula in *Andromeda*, are not clusters of suns, but gaseous nebulae which, by the gradual loss of heat, or the influence of other forces, have become crowded with more condensed and opaque portions."^o

Thus far, then, the spectroscopical observations of the nebulae would seem rather to favour the nebular hypothesis than to disprove it. Sir William Herschel drew the facts for his theory of star-formation from telescopic observations. He found, as he supposed, nebulae in all stages of progress, from the diffuse nebulosity, without definite form or outline, to the bright nebulous star, which consists of an apparently isolated fixed star, situated in the centre of a nebulous fluid of nearly circular outline. Dr. Huggins examined a nebulous star (55) in *Andromeda*, with a strong atmosphere, and he found the spectrum "apparently similar to that of an ordinary star."[†]

The reader has a right to ask what forces are in action in the gaseous nebulae to regulate and control their formation into suns and planets. There is, perhaps, some evidence, as we before intimated, that all known forces are but different modifications of one great primordial principle; but in the present state of positive knowledge we cannot ascend to the origin, but must refer to secondary causes as the producers of the phenomena of nature.‡ We shall enumerate among these causes, repulsion, gravitation, magnetic, diamagnetic, and chemical action. Professor Ennis,

^o Am. Jour. of Science, vol. xl. [2], p. 133.

[†] Ib., p. 80.

§ We recently read some speculations on chemical and gravitative forces, in which the writer assumed that *motion* is the primary cause in nature, and that elastic, chemical, gravitative, and mechanical forces are a result of motion. At present, the best theory of light and heat is that which refers them to the vibrations of an elastic medium. Sound is also thus explained. We can, in the same way, explain chemical force. It is an instructive fact, that the law of gravitation has the same algebraic expression as the law of light; and that both vary according to the geometrical law of the equable distribution of the same absolute quantity of material over spherical surfaces of different diameters. That is, gravitation in its law is like a substance emitted from the surface of a body, and passing into space in all directions. Whatever may be the cause of attraction, we think, from the above consideration, that it must be similar to the cause of light and heat.

We know that every particle of matter, so far as observation extends, is in motion; but whether we should assume that attraction and repulsion are the cause of motion, or motion the cause of the existence of those forces, is yet an unsettled question. Granting the existence of cohesion as distinct from gravity, we know that motion would continue if attraction and repulsion should cease to exist.

in his work on the *Origin of the Stars*, assumes, and then attempts to demonstrate, that the attraction of gravitation alone is sufficient to explain the phenomena of nature. We view gravitation as the great and principal controlling power under whose guidance the outward phenomena of nature, so to speak, were produced. We are necessarily ignorant, at present, of many facts which would be required for us to give a complete history of the transformation of a gaseous nebulae into suns and planets; but by assuming such a community in nature, that the earth with the forces and phenomena which here manifest themselves, is a representation of the astronomical class of material bodies, we are enabled to arrive at many important conclusions. That our globe in its principal features, is of the same general nature as all other similar bodies in the universe, we can scarcely entertain a doubt; for we know that both the telescope and the spectroscope furnish facts to sustain such a view.

Let us now assume that there existed, an immense number of ages ago, a nebulous body of a gaseous nature, similar in conformation and structure to the great nebula in *Orion*, or some similar object, and that it was subject to the actions of all the forces of the universe that pertain to such a body, whether they be the same as those which we have enumerated, or more or less. Spectrum analysis proves that the nuclei of the sun and fixed stars are either solid or liquid, and rendered luminous by heat; and calculations founded on the amount of light and heat radiated from the sun, show in the case of that body, at least, that its surface temperature is so high that we can form no adequate idea of it.* If the sun is rendered luminous by heat, analogy would lead us to conclude that not only the stars but the gaseous nebulae owe their luminosity to an elevated temperature. We are not left to analogy in the case of the fixed stars, for experiment proves that we actually derive a great amount of heat from that class of bodies.

Modern chemistry has made known some curious facts of the chemical relations of so intensely heated matter; and these help to throw some light on the constitution of the gaseous, or primitive nebulae. Heat, under ordinary conditions, is favourable to chemical combinations, but when the temperature becomes higher it reverses all affinities. Oxygen and hydrogen unite at a certain temperature and form

* See *Celestial Dynamics*; by Dr. J. R. Mayer, *Am. Jour. of Science*, vol. xxxvi. [2], pp. 261—5. Also Herschel's *Outlines*, Art. 397.

water, which at a much higher degree of heat become resolved again into its component gases. Thus it is possible to have the temperature so elevated that all substances would be completely resolved into their elements. The recent researches of Deville and others seem to warrant this conclusion. In other words, "we may suppose that all the elements, which make up the sun or our planet, would, when so intensely heated as to be in that gaseous condition which all matter is capable of assuming, be uncombined—that is to say, would exist together in the condition of what we call chemical elements, whose further dissociation in stellar or nebulous masses may even give us evidence of matter still more elemental than that revealed by the experiments of the laboratory, where we can only conjecture the compound nature of many of the so-called elementary substances."* In this way we may account for the fact that so few elements seem to exist in the gaseous nebulae, as we infer from the small number of bright lines which their spectra exhibit. In this process of cooling and condensing the primeval elements of matter would combine in various ways and according to various proportions, and produce, one after another, the ordinary, or so-called "elements" of the chemistry of to-day.

All experience in relation to terrestrial things teaches us that we ought not to assume the primitive nebulae to have been homogeneous in respect to density, at least; and telescopic observations of the known nebulae prove that they are unequally dense in different parts. The diffuse gaseous nebulosity like that in *Orion*, is not symmetrical in form, nor has it assumed the conditions of equilibrium of a fluid mass. We may state the conditions of fluid equilibrium as follows: The fluid matter must be arranged in strata whose density throughout is constant, but it may be different in different strata. The resultant of all the forces acting on any one of the strata must be directed towards the interior of the mass and be normal to all the strata. The resultant of all the forces acting on the body must be equal to nothing.† Or we may state the conditions of equilibrium in the following terms: The *potential* of the fluid mass, when expressed in terms of any arc drawn on the surface of any one of the strata, must be constant for that stratum.

* T. Sterry Hunt; *Chemical News* (N. Y.), vol. 1., p. 82.

† See the demonstration of this in treatises on Analytic Mechanics, Airy's *Tracts*, Pratt's *Fig. of the Earth*, &c.

Nearly every substance known, is subject to magnetic influence. The law of magnetic attraction being the same as that of gravitation, the law of their combination will be the same as that of either of the components, but the unit of force will be different. Thus, the variation of weight in passing from the earth's equator towards the poles, is not the same that it would be if there were no magnetic influence. Magnetic influence may, therefore, have much to do in determining the motion of the individual parts of the primitive nebula. Chemical affinity will also modify considerably the influence of gravitation; for two or more elements uniting, will not only change their relative situation, but many times the resulting compound differs in bulk from the sum of the volumes of the components; and although the mass remains the same, yet the resultant attraction will be different. We may hence conclude that although gravitation is the great controlling force, its effects will be considerably modified in the primitive nebula, by the other forces which we have mentioned.

We may now ask, how it is possible for a rotary motion to begin in the nebula? If the nebula were in equilibrium in all its parts, the resultant action of all the forces acting on it would be zero, and there would be no tendency to motion in any part; but if there be not an equilibrium throughout the mass the forces acting would produce motion. The tendency would probably be to move towards the centre of gravity; but owing to the resistance of the fluid, there would arise a deflecting force which would tend to generate a motion of rotation. Every part of the nebula would be subject to similar influences; and although some parts would produce motion in one direction, and others in the opposite, yet it is scarcely a supposable case to conclude that all the different motions would destroy one another, leaving no unbalanced motion. The superficial parts would necessarily be subject to more rapid movements than the other parts, so that those regions farthest from the centre of gravity would first begin to move.

Professor Ennis, in a sequel to his work on the *Origin of the Stars*, has enumerated four sources of motion in the primitive nebulae, the first of which is drawn from the fact that rest seems to be unnatural in the universe, and the other three result from the action of gravity. These last, however, are but different cases of disturbance of equilibrium, and

they are, consequently, dependent on the general principle which we have stated above. The only source whence motion could result from the action of the forces of nature, is the disturbed state of equilibrium in the nebula. We here quote what Professor Ennis says of the second source of motion to which he refers. "When separate nebulous masses were formed by the ordinary principles of contraction and condensation, we cannot suppose they would be stationed at equal and symmetrical distances from one another, any more than we see among the white clouds which float together across the clear blue sky. Neither would they be of equal size, for the heavenly bodies, like the clouds, are very unequal in size. Therefore, by the force of gravity, the smaller would fall into the larger; and often two or three near together, though of similar size, would fall into one other. But any one could never fall directly towards the centre of gravity of another; because every approaching pair would be more or less under the influence of other neighbouring nebulae. Therefore, in striking each other obliquely, and not in the direction of their centres of gravity, a rotation must result. These collisions must have been a thousand times more numerous than the fall of meteors now, and so they would continue until space became cleared of all small and neighbouring masses, and nothing remained but large and vastly distant nebulae, each one of which is now represented by a great stellar system, containing numbers of fixed stars."*

There are so many ways in which a nebulous mass will fail to satisfy the conditions of equilibrium, that we are at a loss to select that which is the most probable, and which gives the most satisfactory account of the macrocosm. If we suppose the equilibrium of the interior of the primitive nebulae to have been but little disturbed, and that the irregularities of the surface gave rise, through the action of gravity, to surface-currents, which run around the interior parts,† we are able to give a very reasonable account of the origin of the phenomena of the solar system.

Our considerations in relation to the primitive nebulae have hitherto been of a general nature, but, henceforth, we shall speak more especially of the solar system. We shall speak

* From a pamphlet, extracted from the Proceedings of the Academy of Natural Sciences of Philadelphia, 1867. See also Am. Jour. of Science, vol. xxxviii., p. 347.

† This hypothesis is due to Prof. Ennis, "Origin of the Stars."

of the primitive nebulous mass, as the *solar nebula*; and shall suppose the circulating surface-currents to already have an existence, since we have shown in what way it is possible for them to originate.

Writers on physical astronomy demonstrate that there are two figures of equilibrium for the same period of rotation, when the density of the body is homogeneous; but, owing to the difference of the *vis viva* of the two equal spheroidal masses, so different in form as to have the ellipticity of the one very small, and that of the other very great, one figure cannot pass to the other without a sufficient impulse from without.* We may, therefore, assume that if the solar nebula were very much flattened at first, it would remain so during the whole process of its condensation and separation into discrete bodies. Although the primitive nebula was not homogeneous, yet its figure must have been approximately the same as if it were uniform in structure. The constitution and appearance of visible nebula as revealed by the telescope leads to the conclusion that the solar nebula was very much flattened.

Unless all bodies in the universe are absolutely of the same temperature, the state of any mass of matter, with reference to heat and cold, must be continually varying; and what is true now in principle, must have been equally true when the solar system was in a chaotic state. All the facts that we have been able to obtain in relation to the constitution of the physical universe, militate against the supposition that all bodies were of the same temperature, at least so far back as we can carry our speculations at this time in the light of facts.

The loss of heat would cause the nebulous mass to contract; and where a rotation of the nebula existed, whether in the whole of the mass or in the outer parts only, a contraction would accelerate the rotary motion, as we can easily show. The motion of a particle under the influence of the contracting force, was similar to that of a body moving in a resisting medium.† The particle would tend towards the centre of force; but its rotary movement would deflect it from that course, and at the end of a given period of time it would not only be found nearer the centre but also out of the line joining the centre to the original position of the

* See Mec. Céleste, Liv. iii., § 21.

† This idea of friction in the contraction of the nebula we first saw distinctly stated in Prof. Ennis' work, "Origin of the Stars."

particle. The outer particles of the circulating currents of gaseous matter would, in the rotary motion, move with a greater linear velocity than those nearer the centre of gravity of the solar nebula. If, therefore, we suppose a particle suddenly transferred from its position to a point nearer the centre, retaining its original velocity, it would be moving with greater rapidity than the particles immediately around it in its new position. The velocity of the particles would, therefore, be changed, that of the one would become less, and that of the others greater. The resulting effect would be a more rapid circulating movement. What is true of one particle will be true of others, and of the whole rotating mass.

The friction, or *angrenage* which exist between the outer circulating streams of gaseous matter and the inner portions of the nebula in contact with them, would continually cause more and more of the nebulous mass to rotate, till, finally, in the course of immense ages, the whole body would be set in motion. The rotary motion of the solar nebula would develop a centrifugal force which, in the course of time, would equal in the outer currents first, the attractive force of the inner mass, and thus a ring of nebulous matter would be abandoned, or left to pursue a course independently of the remaining part. In a similar way other rings would afterwards be formed.

If the matter in the solar nebula were systematically distributed, the separation of a ring might cause the axis of the interior mass to become inclined a little from its former position, causing the plane of the next separated ring to differ somewhat from that of the former. The orbits of planets formed from such rings would have a slight inclination to one another and to a fixed plane. Since the position of the invariable plane of any system cannot change from the action of its members; and since the plane of the first ring abandoned would coincide very approximately with the principal, or invariable plane, there ought to be a near coincidence between the invariable plane as it is now found and the plane of the orbit of the outermost planet. The plane of Neptune's orbit does not differ much from the position of the invariable plane of our system.

It is highly probable that the density of the first two or three rings would be so small, and the width of them so great, that their interior parts would move with a greater linear velocity than the outer parts, and a planet formed from

such a ring would rotate in a direction opposite to that in which it revolved around the sun. It is, therefore, not only possible, but probable, that Uranus and Neptune rotate from east to west.

Professor Benjamin Peirce discovered, by means of analysis, that the rings of Saturn are sustained by the action of the satellites.* Professor Maxwell has shown that if we leave the influence of the satellites out of the question, a fluid ring will be broken up into small separate bodies.† Professor Kirkwood has shown‡ that the principal division in Saturn's ring is owing to the attraction of the satellites; and by supposing that a gaseous ring once existed immediately within the orbit of Jupiter, as required by the nebular hypothesis, he shows that the action of that planet would cause the primitive ring to be separated into numerous narrow rings; or if the original ring had separated into small bodies, such bodies, or planets, would be drawn into groups. We may now sum up as follows:

Professor Peirce's theory shows that a ring where the asteroids now are, would exist as such for a long time; Professor Maxwell's theory shows that the ring would ultimately be broken up into small bodies; and Professor Kirkwood's theory shows that such bodies would be arranged in groups. Observation has made known the existence of nearly a hundred asteroids between the orbits of Mars and Jupiter, and by a comparison of their orbits Professor Kirkwood has shown that they exist in groups, as his theory requires.§ It is the powerful masses of Jupiter and Saturn that caused the existence of the asteroids where they are found.

The linear velocity of Mercury in his orbit is about twenty-five times as great as that of the sun's equator. If every part of the solar body had been rotating with the same angular velocity at the time the Mercurial ring was abandoned, the equatorial parts of the sun would have moved with a velocity greater than that of Mercury in his orbit. From these facts and considerations, we conclude that all the interior parts of the solar body were quiescent, or nearly so, at the time the Mercurial ring was separated.||

* Gould's *Astro. Journal*, vol. ii., p. 18.

† On the Stability of the Motion of Saturn's Rings, p. 45.

‡ Metier's *Astronomy*, pp. 102-111.

§ *Ibid.*

|| See Ennis on the Origin of the Stars, pp. 255-6.

If we suppose the density of the sun in its equatorial parts to be one-fifteenth of his mean density when he was expanded to the orbits of the several planets, and that this density was equal to that of the planet when in its expanded form, we find the diameters of the several planets, expressed in miles, as given by Professor Ennis,* as follows :

Mercury.....	974,000	Jupiter.....	231,200,000
Venus.....	4,428,000	Saturn.....	284,600,000
Earth.....	6,393,000	Uranus.....	296,400,000
Mars.....	4,954,000	Neptune.....	504,800,000

These numbers are very instructive. They show us why the earth and the larger planets have all the satellites ; why the latter have so rapid a rotary motion as compared with that of the smaller planets ; and why the asteroid ring seems to separate, as pointed out by Humboldt,† the primary planets with two general classes, the exterior ones, Jupiter, Saturn, Uranus, and Neptune, having a period of rotation of about ten hours, and the interior ones, Mars, the Earth, Venus, and Mercury, each rotating in about twenty-four hours. After the Earth had abandoned its satellite-ring, its condition was then very nearly the same as that of the other interior planets.

In 1849, Professor Kirkwood made known the existence of a certain relation between the members of the solar system. It is this : The square of the number of axial relations of a planet in its period of revolution, or year, is proportional to the cube of the diameter of its sphere of attraction. The "sphere of attraction" is found in this way. Take three planets—Venus, the Earth, and Mars, and suppose them lying in the same straight line. Somewhere between Venus and the Earth there is a point where the attractive force of the two bodies would be equal, and a similar point exists between the Earth and Mars. The distance between these two points is the diameter of the earth's sphere of attraction. Dr. B. A. Gould named this relation Kirkwood's Analogy. Dr. Gould says : "Mr. Kirkwood's theory, as regards the rotations of the planets, will, if found to be true [its truth is generally admitted now], furnish a remarkable and unexpected argument in support of the nebular hypothesis. The minds of many have been wavering of late with regard to this hypothesis ; their doubts have been strengthened by the unqualified assertion that all neb-

* Origin of the Stars, p. 261.

† Cosmos, iv., p. 422, Bohn's ed.

ulæ are resolvable; but this analogy of Kirkwood tends, most strikingly, to confirm it—so much, indeed, that if this latter be true, I do not know how any one can resist the argument which it furnishes in favour of the former, in so far as it applies to our solar system. It is then no longer a hypothesis, but becomes a probable theory.”*

Meteoritic stones may have their origin in the solar system, or they may come *ab extra*. It is not improbable that some portions of the lunar ring did not unite in the moon, but became small satellites of themselves; which, by the perturbing influence of the moon, might be drawn into the terrestrial atmosphere, whose resistance would bring them to the earth. We have better evidence, however, that they come from the Asteroid ring; for observation has made known the existence of nearly a hundred such bodies, and new ones are being discovered every year. Many of them are but a few miles in diameter, and thousands, without doubt, exist, but they are too small to be seen by our most powerful telescopes. Many such small bodies, owing to the extraordinary perturbations to which they are necessarily subject must find their way into different parts of the solar system, and not unfrequently come in contact with the planets.

A few comets may have had their origin in the solar system; at least, we grant the possibility of it, but think the probability of it is very small. Some able astronomers at present regard comets and meteors as of the same general nature, differing only in magnitude.† Since meteors come in streams (not, indeed, like water, but as small, unconnected masses of nebulous matter), rather than in independent bodies, like the planets, their existence is easily accounted for by supposing them to come from regions far beyond the limits of the solar system. If we suppose a nebulous mass of any form to begin to move towards the sun from the interstellar spaces, the part nearest to the sun would reach the perihelion of its orbit long before the central parts would; and if the attractive forces of the solar system should cause it to be retained in an elliptic orbit, the particles of nebulous matter would never again be collected into a form similar to that which they at first had, but instead, they would exist as

* See Am. Jour. of Science [2], vol. x, p. 26.

† *Ib.*, vol. xliii., pp. 291-9.

a ring (if closed), or a stream (if not closed), of meteoric matter.*

We may now ask, What maintains the sun at its present elevated temperature? That immense focus of light and heat must be continually diminishing in temperature, and unless its fire is replenished it must ultimately go out. We may state, first, that the sun does not lose all the heat which it gives out, but a considerable portion of it is given back by the other bodies of the universe. It has been proved, as before stated, that we derive considerable heat from the fixed stars. According to Professor Helmholtz, "if we adopt the very probable view, that the remarkably small density of so large a body is caused by its high temperature, and may become greater in time, it may be calculated that if the diameter of the sun were diminished only the ten-thousandth part of its present length, by this act a sufficient quantity of heat would be generated to cover the total emission for two thousand one hundred years."† Dr. Mayer proposed a few years ago the fall of meteors into the sun as the cause of his present elevated temperature, and its continued existence.‡ We know from observation that millions of meteors are daily coming into our atmosphere, and reason teaches us that immense swarms of them must be almost continually pouring into the sun. Experiment and calculation prove that the amount of heat thus developed by percussion is very great. Professor Ennis contends that solar heat is owing to chemical action.§

We contend that all the causes which have been mentioned are the source of the sun's elevated temperature, and the cause of its long continuance. The nebular hypothesis supposes the solar nebula in the beginning to have had an elevated temperature, and we have only to look for causes that will maintain it. The fall of meteors will not only develop heat by percussion, but the burning of them in the sun will do the same thing; and the contraction of the sun's diameter will equal its increase by the fall of meteors. His increase in mass could not be perceived for ages.

We believe, however, that the sun's light will one day go

* This is the theory of M. Schiaparelli, of the Brera Observatory at Milan; and Professor Newton, of Yale College, one of the first authorities on the subject, characterizes it as "the most important recent contribution to the theory of shooting stars." See *Am. Jour. of Science*, xliii., pp. 291-9.

† Youman's *Correlation and Conservation of Forces*, p. 244.

‡ See *Am. Jour. of Science*, xxxvi-vii, 263-4, and 192. § Origin of Stars.

out, or the planets and all other bodies in our system will fall into the sun, and be re-converted into vapour. Material nature seems to be subject to cyclic changes. The reader will see that our system being developed under the influence of all the powers pertaining to it, must be stable so far as gravitation can effect it. We shall only add that the nebular hypothesis, like the undulatory theory of light and heat, is gradually taking precedence of all others.

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- ART. VII. 1. *De Occulta Philosophia*. AGRIPPA. 3 vols.
 2. *Opera Omnia* (Complete Works). PARACELSUS.
 3. *Opera Omnia*. VAN HELMONT.
 4. *The Works of Emanuel Swedenborg*.
 5. *Odish-magnetische Briefe*. (*Odic Letters, &c.*) VON REICHENBACH.

FROM time immemorial, mankind has set apart from ascertained and reported facts or phenomena a certain class, and placed it in the darkest, dustiest corner of its storehouse labelled in deepest black: "The Supernatural." In recent, enlightened days, this gloomy department has rarely been visited. Our modern science accepts only the facts of broad daylight, and goes soundly to sleep with the setting of the sun. A mysterious horror seems to seize it the moment mention is made of the occurrences of darkness. Whether this horror be fear of truth or fear of the devil, we shall not attempt to decide. Suffice it to state it as a fact.

The question that arises to every rational being is this: What ground of distinction, if any, is there between that class of facts which all mankind is ready to accept as natural, and the other facts which are by so many pronounced supernatural?

For if there is such a ground of distinction, then its very showing up will furnish the key to the explanation of all the facts considered inexplicable; whereas, if there is none, if phenomena are *arbitrarily* arrayed under the one or the other class, then the problem also will have been solved by the proof that there is no problem to be solved.

Not every systematic representation can afford to go back to the fundamental principles of all knowledge for its basis. Those principles must be supposed to be generally

known from a study of the science of knowledge, for to restate them at every occasion would be an endless task. It will, therefore, be not improper to state, historically, that it is an *à priori* necessary conception of reason, that each minutest particle (atom or monad) of the universe stands in reciprocal causality with all others. Each pulsation, each breath of our mouths, the removal of a single grain of sand affects the whole universe. This reciprocal causality is generally regarded from a twofold standpoint, as either of a quantitative or qualitative nature. In the former case the causality is said to be mechanical, and called attraction; in the latter case it is said to be chemical; both relations being, however, merely different views of one and the same relation, for a chemical process is simply the displacement of "atoms" from a previous position, and a displacement always operates through attraction. In fact, the whole transition, from quantity into quality, so far as natural objects are concerned, is based entirely upon change of place or position, and hence upon mechanical principles. The distinction between chemical and mechanical processes is, therefore, utterly arbitrary. No one has demonstrated this with greater clearness than Swedenborg, in his *Principia*. If it is, however, an arbitrary distinction, then there may be infinite ways of viewing the causality between external objects, and this will possibly turn out to be the case. Indeed, it is a well-known fact that the operation of magnetism, electricity, heat, &c., being as yet unassigned to either class of causality, is, in point of fact, already accepted as a third, fourth, and fifth manner of viewing that causality.

When it is now considered, that in the history of mankind only those phenomena could be accepted as natural, whereof the causality-relation could be established, we are near the solution of our problem. For to accept a fact as natural, or to comprehend it, signifies to see its genesis from its ground, and to show up the ground of a fact is to establish its causality-relation. Thus all facts of nature, which could easily be seen to be the results of mechanism, were first and easiest comprehended, and all facts which could not be immediately explained by its means, were necessarily pronounced to be supernatural. The causality-relation between the planets in space, for instance, was utterly a supernatural fact—*i. e.*, the effect of God's specially exerted power—until Newton arose to show that we could subsume it under the general category of mechanical attrac-

tion. In the same manner a number of facts of so-called chemical causality were, for a long time, held to be incomprehensible, and the production of supernatural causality; but above all was the fact of the causality existing between the magnet and the iron regarded as incomprehensible until Swedenborg shewed it, like all other phenomena of attraction, to be subsumable under the category of motion; the particles in the magnet being placed in such a manner as to cause to issue from it a current of motion wherewith it, as it were, sucks unto itself the iron.

Now, at all times of human history, certain facts occurred which could not be arranged under any known category of thinking; and these facts were, therefore, assigned to the region of the incomprehensible or to the supernatural. But since the process of subsuming facts under categories is altogether dependent upon the freedom of reflection, there could be no valid ground of distinction between the two classes of facts, and hence every age, and indeed every individual, in the judgment of facts of mere nature, arbitrarily classified them. A may call supernatural what B will call perfectly natural, and *vice versâ*, as either party may be best able to subsume the fact under a category. Hence there is no objectively valid ground of distinction between the pure phenomena of nature. The distinction is purely arbitrary. At each age, certain facts were arbitrarily assigned to magic, sorcery, witchcraft, the supernatural, spiritualism, &c., all of which terms are merely a sign = X to designate an unknown category; and it was the great merit of the scholars of the middle ages—of Trithem, Paracelsus, Van Helmont, Agrippa, Albertus Magnus, &c.—that for this X they sought to substitute a rational category, or a real causality-relation; therein much in advance of our modern men of science, who have relapsed into the use of those wretched terms of witchcraft, &c., or of the still worse classification of humbug, charlatanry, &c. With these men, therefore, began the first attempt to achieve a comprehension of *all* the phenomena of life.

Hence we find amongst these men a zealous endeavour to arrange all facts which were not immediately explicable through the mechanical process of nature under another causality-relation, and to establish a new name or comprehension for its manner of working.

For the manner in which we enlarge our comprehension of the objective world is as follows: All its occurrences *can*

be gathered together or comprehended as the result of only *one* general causality-relation; but this comprehension we constantly endeavour to make clearer to ourselves. This making it clearer is achieved by means of separating again the one general comprehension into two opposites, then these opposites again into new opposites, &c., &c. This analysis—proceeding hand in hand together with its synthesis—we can continue to an infinite extent; and thus establish infinite modes of the one universal causality-relation. Each such mode we thereupon call a force and name it. *All force in nature is simply a mode of viewing the causality-relation between things*; and the number of forces is as infinite as our modes of regarding the one force. Whether you say, “there is only one force,” or “there are an infinite number of forces,” is all the same. Both expressions are true, and indeed constitute only one synthesis. Now, while the transcendental philosopher is well aware that forces are simply these modes of looking upon the causality-relation, the dogmatist holds them to be things in themselves, and hence speaks of these forces as actually existing and operative, although to do so is absurd. Thus we hear them speak of attraction as of an actually existing force, and in like manner of other forces. They also talk of a correlation of forces, as if there were any necessity to prove it; and get quite warm—to the great amusement of all who understand the joke—in discussing, whether there is such a thing as a vital process, besides the mechanical and chemical powers, instead of asking whether it is a necessary mode of viewing the general causality-relation, or, in other words, whether it has a valid ground of distinction from other forces.

Following this general dogmatic bent of all mankind, the great men of the middle ages also proceeded to establish an existence for their causality-relation, which was evident to their minds and which had as yet been unknown. Thus Van Helmont says: “There is in the air an uncreated something, which has no body, which stands between matter and spirit, and belongs to neither. It has not its like in all creation. It is not light, but rather a form married to air as its helpmate, although not united to the essence of air. Through this form the ether of the stars is immediately and in one moment borne to every point of the universe. It expands in heat and contracts in cold. It is most potent on mountains.” And Maxwell adds: “This spirit continually floweth from the sky and continually returns into it.”

Agrippa of Nettesheim naturally sought to bring even the manner in which the soul affects the body, and the causality-relation between God and the universe, under the category of this agency. Naturally, because every new mode of viewing that relation appears at first sight to be applicable to all phenomena, until it shows up its own limitation. Agrippa says: "Since the soul is a *primum mobile*, and has its own spontaneous motion, whereas matter in itself is incapable of motion, and altogether too opposite to the essence of the soul, therefore must we accept a medium, a something which is not truly a body, but already a soul, or not truly a soul but already a body; hence a medium between soul and body, by means whereof they are united, and the soul is enabled to unfold its wonderful powers. The same spirit is in the universe, and of the same form as ours is in our own body; for as the powers of our soul work upon the body by means of this spirit, so does the power of the world-soul work upon the world by means of that spirit. There is nothing in all the world which has not a spark of this power; but it is most potential in those things which possess most of that spirit which flows from the heavens and by means of the sun, the moon, the planets, and the stars above the planets, and infuses into all herbs, stone, metals, &c., their occult qualities."

Do these statements of Agrippa and Van Helmont sound so very different from what Humboldt says in his *Aspects of Nature*? "That, which invisible constitutes the weapon of the remarkable electric eel, which, awakened by the connection of humid, unequal parts moves around in all the organs of plants and animals, which thundering enflames the wide cover of heaven, which connects iron with iron, and directs the quick motion of the guiding needle; it all, like the colours of the separated rays, flows from one source, and flows together into one omnipresent power."

Or as the transcendental philosopher would apply the same simile: precisely as all colours are but infinite modes of viewing the never seen one light, so are all forces of nature but different modes of viewing the one universal power, which, itself, is never seen, and is only the opposition which the Ego makes to itself in order to behold itself.

When it was once understood that even the remotest particles of the universe must be regarded as influencing all others in a particular unknown mode of causality, the influence of the stars upon mankind became all the more a

subject of profound study, as the influence of the moon was palpable to the very senses. Hence arose those famous calculations of astrology, which, far from being a mystic and supernatural affair, were built upon the plainest principles of nature, and never pretended to be aught else than natural. Utterly wrong and absurd as they may or may not be, the reproach that they were the up-growth of superstition does not apply to them. The men who made those calculations had less superstition than our present enlightened men of science, who turn their backs upon countless facts of every-day occurrence and say: Humbug! which is but an equivalent for Magic! The famous Tritheim—the same of whom tradition has said that he conjured up before the Emperor Maximilian the shade of the celebrated Mary of Burgundy, and who thus was the prototype of Faust's conjuring Helena—was one of the most learned and wisest men of his time. Lerchheimer, in his "Christian Considerations against Sorcery," &c., says of him: "At our fathers' time, about seventy years ago, there lived Johannes of Tritenheim, a very learned and wise man, yet not in that he was much and secretly given to the devil; although *he always repudiated this charge and pretended that he did everything by natural means*, which, however, no sensible Christian will believe who sees or hears his doings."

Concerning these natural means, Tritheim himself writes: "That which occurs in my enflamed soul I can communicate to friends more than five hundred miles apart, without the use of words, signs, or tokens; I have a world-language, which is understood by all the world, and which I have neither learned nor heard." This causality-relation, of which we shall speak hereafter, belonging as it does to the second class of phenomena, must certainly have appeared very strange to such "sensible Christians" as good old Lerchheimer, but no clear-minded man to-day doubts that Tritheim worked by the very natural agency of what we call mesmeric power.

So, likewise, does Paracelsus, the disciple of Tritheim, utterly disclaim all supernatural interference. That a peculiar causality-relation exists between all objects of nature, and even between the stars and man, is as clear to him as the sun's glory. But only so far as man is part of nature, is an earthly nature. Hear his noble words, and compare with them the *sorcery* preached by men like Moleschott and Vogl, who hold that *every* part of man, even his will, is ruled by

the external forces of nature. For what is the true meaning of sorcery, if not, that not intelligence, but dark nature works everything within us? "But therein is a great difference," says Paracelsus, "which is well to be observed, that one person is governed and necessitated by the stars, whereas another person is not. Hence it is of great need to know who can govern and master the stars, and who, on the other hand, is governed by them. Know, then, that the *wise* man can govern and master the stars, and the stars not him. The stars are subjected to him, and must follow him, but not he them. While, on the contrary, a *beastly* man is ruled, mastered, forced, and necessitated by the stars, in such a manner that he must follow them, as the thief follows the gallows, the murderer the wheel, the fisher the fishes, the birdcatcher the birds, and the forester the game. And what other cause is there for this, than that he knows not himself, nor how to use his own powers concealed in him, and that the stars, and the whole firmament with all its powers, are in him, &c.; whereas, the wisdom of man is in no one's service, and no one has given away its freedom; hence the stars must follow it, and be subjected to it, and not it to the stars."

Grandly speaks Van Helmont of this universal causality-relation: "If the ether of the stars worked upon us merely through their light, their influence would clearly cease as soon as we got under a roof, nor could it be exercised upon the water and the plants of the earth when the sky is cloudy. Nevertheless, the sick feel the analogical movement of the moon and predict the change of weather, because the lights of heaven are created and connected with the seeds of the things themselves. These things follow only the movements of the next related light, and the influence of the universal ether of the stars. *We carry the heavens in us, in the primary ground of life*, and with this pentaculum has the Almighty sealed all animated beings." "Throughout the whole universe," says Van Helmont elsewhere, "reigns this *magnale magnum*." By its means arises that attraction and sympathy, or repulsion and antipathy, which we witness everywhere. By its means the eagle is attracted to the carcasses, which could not possibly be smelt by him, but which, being of the same nature whereof the eagle's body is composed, can be placed in potent relation to him. By its means the palm loves the palm, and bends over to it, the vine the elm, and the olive

the myrtle. By its means arises the friendship which we see the peacock displaying towards the pigeon, and the thrush towards the blackbird; and the enmity which the hare cherishes against the dog, or the scorpion against the lizard and the mouse—"hatred so great that even a dead mouse will, by its touch, cure the bite of the scorpion." By its means the chicken, otherwise flying at the very sight of a dog, will, when a mother, turn against the dog and cause him to sneak away; and by its means may some plants overpower our body through their mad phantasy, and may the *magnale magnum* of the mad dog hold our brain under its subjection. The hatred which wolf and sheep nourish against each other is so intense, that it lives even in their dead skins, so that a drum made of both kinds of skin will not sound. Thus, also, does rhubarb hate gall, does the sapphire hate pestilence, fever, and eyesores, does the amethyst hate drunkenness, and the emerald unchastity. Cabbage and marjoram so intensely hate each other, that they will not grow together in the same piece of ground. The vine has such sympathy with the vine that it will ferment anew whenever the vine blooms, and that this is not the effect of climatological causes may be noted by this that it ferments when the vine blooms, no matter at what time of the season it blooms; and that it ferments only in countries where the vine grows.

Thus does it happen that the man who sleeps under the skin of the glutton wakes up with an inordinate appetite, the *magnale magnum* of the animal having gone over into the sleeper and overpowered his own nature. All the phenomena called "odic" by Reichenbach belong to this class—the name "odic force," like the name "tellurism" used by Kieser, being but another word for Van Helmont's *magnale magnum*, and Agrippa's "spirit." Thus the cases of people, who have an aversion to yellow colour, faint before mirrors on account of the power exercised over them by the reflected light and by the quicksilver; or who love pickles, vinegar, &c. Nay, this force, connecting objects together, can even, in some instances, become perceptible to the touch. The same spiral current of movement which Swedenborg posits as issuing from the magnet and as explaining the attraction and position of the planets, can be felt by some persons when holding their hands over crystal. From each pole of the crystal a current of air arises towards the hand. Most persons can feel it, also, when holding their

hands over water, or a piece of iron close to the eye or lip. Nay, it can even be seen, for Reichenbach tells of many instances when his sensitives have seen issue from the pole of the magnet magnificent streams of light, and fall down like a glorious cascade.* Every one can see the effects of this current of motion by holding between his thumb and forefinger a piece of iron attached to a string. If you hold the other fingers horizontal the iron will move to and fro; whereas, if you hold the other fingers perpendicularly, the iron will move with a circular movement.

Concerning the "odic" effects of *colour* much curious information is to be obtained from Goethe's theory of colours. Paracelsus held that blue cures all diseases of the throat, whereas yellow operates upon the bile. A glass of water exposed to blue light, says Reichenbach, will taste cool and agreeable, but when exposed to yellow light, warm and disagreeable, although no *chemical* difference can be established between the two kinds of water. Water exposed to the moon, says Reichenbach, tastes bad, and Van Helmont held the same, assigning as a reason that moonlight favours decomposition. Hence the moonlight is bad for the cure of wounds, but an excellent agent for the cure of sores, which are to be got rid of through decomposition. Thus, also, the sunlight does not always produce heat. Often the shade is warm, and the light cold.†

It were, indeed, an interesting subject of investigation, to gather together all the distinctive phenomena which are the result of *reflected* light, whereof the moon furnishes probably the best example, and to observe in what manner it is the agent of death, as direct light is the agent of life.

Van Helmont tells many curious stories of the manner in which this causality-relation operates. Thus the following: "A citizen of Brussels lost his nose in a battle. He went to a surgeon in order to have a new nose put on. But not willing to have the flesh cut out of his own arm, he hired a poor man to undergo the operation. The citizen of Brussels returned home with his new nose made out of another's flesh, and all went well until, after the lapse of thirteen months, his nose suddenly grew cold and within a

* Schubert also holds that the motion of attraction is visible, and mentions instances. See "Die Symbolik des Traumes," chap. "Die Echo."

† See Odic Letters.

few days fell off, rotten. Investigations made, led to the discovery that the man, from whose arm the nose had been taken, had died at the same moment when the nose had grown cold." "I know an herb," says Helmont in another place, "which, if you take it in your hands and let it grow warm therein by crushing it, will cause every one with whom you shake hands afterwards to feel a particular physical attraction for you for several subsequent days."

We may add the following instances: Jacob Boehme fell into a trance after having gazed steadily for some time at bright tin. Kaspar Hauser was extraordinarily sensitive—from his long contact with nature alone—and could distinguish the impressions produced by different metals upon him with great clearness. A cold current swept up his arm when his fingers touched gold. Less cold as he touched silver, still less when he touched iron, brass, and lead. He could scarcely eat with a spoon of silver. Tycho de Brahe trembled when looking at a hare; while Schiller detested spiders, but preferred the smell of rotten apples to all perfumes. Royston tells of a man who had to vomit whenever ipecac was powdered in any part of his house. In Moritz's valuable "*Magazin für die Erfahrungsseelenkunde*" the following story is told and vouched for by Goerking. A very sensitive man happened to sit in a garden with a celebrated German author. Suddenly he grew very restless, and when asked for the cause of it, he replied that a human body must be buried along the garden wall. The spot pointed out was dug up and a human skeleton discovered. No man could tell how it came there. Pfeffel and his brother often took a walk with a friend, a clergyman, past a little grove. At a certain point of the walk the clergyman always turned around and could not be induced to pass any further. Frequent and earnest entreaties made him confess that a white, long, and bony human form stood on that spot and prevented him from passing it. The brothers who probably thought it a foolish freak of their friend, agreed to drag him past the spot on a certain occasion, and did so. The clergyman was greatly excited and indignant; and when the brothers now caused the place to be dug up, a skeleton was found. After it was taken away the clergyman saw no form there again.

To the same class of phenomena belong the facts of the hazel rod, which tells when water and minerals are concealed under the ground. It is not true that the rods are neces-

sary for the operation, although they certainly increase sensitiveness. The fact is that some persons have a peculiar talent to distinguish between the impressions made upon their senses by external objects, which enables them to tell whether they are in the neighbourhood of copper, iron, water, or gold; and this sensibility can be cultivated like any other ability of reproducing sensuous impressions. There is no reason why this should appear strange. People when hearing music for the first time can distinguish no tones, not even a melody. Only through long and constant habit of close attention do we attain the ability to become conscious of the different impressions produced upon us by the different tones. The ground is that the ego must be active in order to be self-conscious. It must reproduce the impressions given. In the same manner we are all, doubtless, impressed by every object around us, only we cannot distinguish between the sensations, and hence cannot become conscious of them.

Some people again—like Reichenbach's "sensitives"—have more talent for this sort of reproduction of sensations, as others have more talent for music, colour, &c. But there is no doubt that each person can cultivate this power to an indefinite degree, and thus learn to distinguish between the different sensations gold, iron, water, &c., will produce upon his body.

To a mind unprejudiced by the cant of modern science there will seem nothing superlatively strange or supernatural in this reciprocal causality between objects of nature; and all that is wanted here, as in every other science, in as far as it is empirical, is a reliable collection of facts, and next the grouping together of these facts for the practical use of mankind. This collection and arrangement of facts has only been done in one field of science—the medical profession. It was, indeed, in the nature of the case, to pay pre-eminent attention to the medical aspect of this causality-relation, and hence Paracelsus, Agrippa, &c., have left quite a number of themes and precepts.

Their general theory as applied to diseases was somewhat as follows: 1. The influence which each part of the universe exerts upon all others may also be regarded as a medical influence. 2. The law of opposition being applicable to all phenomena of the causality-relation, this influence is also to be regarded as of an opposite or polaric character; and hence each part has in its relation to all other parts in general, and

particularly to the human body, either a friendly or hostile effect. 3. The closer a part is brought into *relation* with the body upon which it is to exert causality, the more effective it will work ; and hence the establishing of this relation is an artificial process. 4. In medical matters such parts of the human body as blood, sweat, hairs, nails, urine, excrements, &c., being particularly impregnated with the disease of the body, and being, so to speak, magnetic with the disease, may thus be made use of to transplant the disease into other objects of nature, and by the reaction of these objects—now placed in relation to the human body—to draw out the disease. 5. The power latent in these excrements, &c., is made free in fermentation, and hence does not operate until it rots and thus grows free.

Upon this theory grew up that famous science of transplantation, a science still practised to an incredible extent, and of which probably every reader of this Review can call an instance to mind of a friend or acquaintance, with warts on the hand, which a “witch” “charmed” away by tying as many knots in a string as there were warts on the hand, and then burying the string in the ground. But the other day we were told by as clear-headed and unbelieving a man as one could wish to meet, an instance which serves admirably to illustrate the practice. He had, when a child, been long suffering from jaundice, and the physicians could do nothing. Finally his mother went to a neighbouring woman, who enjoyed the reputation of being a witch. The witch said like Tritheim : “It is all done by natural means, and to convince you of it, I will cure your son at midday, although he will suffer more than he would at midnight when the moon is up. Bring me his urine.” So the mother brought it, and at midday the boy was suddenly seized with violent spasms, and thereupon fell into a trance, which lasted several hours, after which he awoke cured. The *modus operandi* of the witch was not known to our informer, who only recollected that upon her death many hundreds of pots were found buried in her garden. It was, therefore, probably the method called by the “quacks of the middle ages” (Paracelsus, Van Helmont, &c.) “transplantation into the soil.” The urine which contained the disease in its highest potentiality, the witch buried in the ground, where it began to ferment and immediately placed itself into relation with the body it had left, drawing out from it the disease as iron draws out magnetism from the magnet !

The mode of transplantation is as various as the disease itself, and, of course, to a more or less extent, to be tested in correctness by empirical trials. The usual rule is, however, to make the "magnet" out of that part of the body which is most affected by the disease. In diseases of the lower organs, the excrements are used; in diseases of the throat, the spittle; for eruptions, some of the matter, &c. The magnet may be deposited in the ground, or in a tree, or given to an animal. Thus, in an old book, published in 1611, by Ulrick Dominicus Balk, it is said that if you take some blood of a person sick with pleurisy, and pour it in an egg, which egg is then to be placed under a hatching chicken, so as to cause fermentation, and give thereupon some of this fermented blood to a dog or hog to eat, the sick person will recover, and the animal get the disease; somewhat like the devil in the gospels, who went out of the boy and entered a herd of swine.

Often, also, *number* comes into play as a medical agent. Three grains of pepper are to be used for a three-days' intermittent fever; four grains for a four-days' fever, &c. Far more important than number, however, is *position*, which, as we have already shown, is the mediating agency between qualities. The leaves of the hazelwood bush, for instance, are a purge; "but only," says Van Helmont, "when they are plucked from the top of the bush downwards, whereas, if they are gathered in the other way, from below upwards, they will work as an emetic. And it does not matter whether the patient knows how they were plucked or not, they will always work in the manner of their being gathered."

Superstitious as this may seem at the first glance, is it more supernatural than the fact known to every good housewife, that soups cooked, and white of eggs beaten into foam, must always be stirred or moved in the *same* direction, unless they are to spoil; or the fact known to every gardener, that trees transplanted should be placed in the same position towards the north which they occupied before. "One single back stroke of the magnet," says Swedenborg, "places all the particles of iron again into such a position that the spiral current cannot issue from it any more, and hence it ceases to attract."

In fact, all the phenomena which are the result of a causality-relation between objects of nature, are in nowise particularly distinguished from each other. We may view that relation as of a mechanical, chemical, electrical, magnetic odic, or telluric character; each subdivision of the one

relation being merely undertaken to facilitate a clearer comprehension of the one causality, and having its limits drawn altogether by the freedom of reflection. Nearly all of the phenomena, classified by Reichenbach under the new name of *odîc force*, had previously been classified by Dr. Kieser, with many others, under the more general name of *sideric phenomena*, and by Van Helmont, Paracelsus, and Tritheim under still other names.

There is no justification, therefore, for drawing a valid line between this class of phenomena. All that is wanted is a reliable collection of such facts, whereof literature and every-day experience furnish abundant number. For "magic" is even, in these enlightened days, one of the most popular sciences, and common people insist that their magical medical prescriptions do not kill so quick as those of the regular science. Moreover, we have spiritualism, which, likewise, amongst numerous physiological phenomena, furnishes many facts which are purely the result of the reciprocal causality between objects of nature.

We have seen that to make a distinction between natural and supernatural phenomena, is an utterly arbitrary and unwarranted proceeding, so far as the causality-relation between the objects of nature is concerned. The second question remains, whether it may not be necessary to institute such a distinction between those phenomena which are the result of the relation existing between the Ego (self-consciousness) and the objects of nature.

That such an immediate knowledge of occurrences, which is not limited like all ordinary empirical knowledge by time and space, has ever taken place in human history or does take place, is a matter which each person may believe or not, as the historical data at hand may convince him or not, and so, likewise, is the extent to which such knowledge may be developed; but that it is *possible* may be best shown as follows:

When we consider the universe as a whole, each part whereof is both related to itself and related to all others, it is immediately certain that each part involves in its own construction, as it were, the conception of the totality. Now, if you ascribe to such part *immediate consciousness*, or instinctive knowledge of what occurs within itself, you will thereby give it the power of becoming conscious of all the occurrences within the whole totality. Every change within the totality would

effect a change within each part, and since in consciousness every change is brought to knowledge through sensation, any change within the totality or within any part of the totality would necessarily produce a sensation within each other part. Hence, to become aware of a change within any part of the universe, it would simply be requisite that a part of it should be able to recognize the sensation produced upon it by such change.

It is also clear why this instinctive knowledge should often err, and why it should require diligent practice for its development. For it is only after long experience and diligent study that we learn to distinguish between impressions made upon us, and even then we often mistake one sensation for another. The most practised musician will not at all times be able to recognize a tune through merely learning it. It is a well-known fact that an exquisite sensibility of this kind to internal sensations is always accompanied by a delicate, nervous organization, which may be either the cause or the effect of it. Hence we find it particularly developed amongst the people who reside near the North or South Pole. In the Scottish Islands, in Norway and Sweden, as well as in the islands of the Southern Ocean, we find whole families having and inheriting this marvellous gift of fore-knowledge, or second sight. Amongst the Laplanders and other northern people the highest degree of nervous susceptibility is manifested; probably as a result of long nights and consequent absence of sunlight. So little of self-determination have they to control their impressions, that, at the sight of a traveller from warmer regions, they will convulsively and unwillingly imitate all his motions, gestures, &c., just as passionate musicians will lose all control of their bodily movements, and often execute the most ridiculous grimaces.*

The extraordinary sensitiveness of the philosopher Swedenborg is a well-authenticated fact. Not only could he feel within himself what was passing at Stockholm on that famous occasion of the great fire, but even the deaths of many persons were thus made known to him. We have said, could *feel* within him, for all somnambulists, prophets, and seers agree in stating that they do not see or hear

* The phenomena of Epilepsy, Catalepsy, Lycanthropy, St. Vitus' Dance, as well as the convulsions told of the Montanists in early Christian times, and of Methodists of the present day, all belong to this category, though we could not possibly suggest in the short space of this article their more particular explanation.

through their eyes and ears but through their heart and liver. Hence in scripture the liver is always mentioned as the seal of life; and even Plato says in his *Timæus* that the gift of prophecy was given to the liver, so that even our body might have something divine. This seeing and hearing through our inner body is precisely that immediate instinctive becoming conscious of what is in us, which we have mentioned as altogether distinct from the intellectual cognition by means of empirical knowledge. Van Helmont, having experienced a state of somnambulism after the accidental eating of a certain root, says: "I first had a feeling, as if the crown of my head were being laced tight together. Suddenly I experienced feelings as never before. I felt that I did not think with the brain, nor understand, know, or imagine in the ordinary manner; but I felt, to my great astonishment, *clearly, distinctly, and permanently* that all those functions were being performed around the heart and stomach. I felt this determinedly and clearly, and I remarked attentively that, while sensation and motion proceeded from the brain throughout the whole body, yet the whole power of thinking was concentrated in the region of the heart, as if the soul were there considering. Much astonished at this new mode of sensation, I only observed my thoughts and examined them as well as myself closely. I found that my thinking and considering grew in the meanwhile much clearer. There was blissfulness in that intellectual clearness."

If we allow for the lack of philosophical terminology which makes Van Helmont here use the word "thought" and "thinking," for instance—when he evidently meant merely to designate "immediate consciousness"—we have in this statement a very clear psychological description of the mode of this consciousness. The *blissfulness* is precisely the same which the Orientals seek in eating opium and hasheesh, which Europeans seek in rum and whiskey, which all sensual men seek in sexual pleasure, as they profanely call it, which the grief-laden labourer seeks in sleep; but which the strong, healthy, and good man only seeks in doing his duty. It is the *breaking through of limitations* which causes this bliss.

Of the peculiar nature of this immediate consciousness we have another instance in one of the most clear-minded of men, Ludwing von Voss, General Director of Hospitals in the great German wars against Napoleon, who, writing to a friend, confesses of himself: "Do not smile when I tell you that I

can feel whether some one has sat upon a sofa or a chair a half an hour ago, particularly if it was a person of strong vitality. Yesterday I felt that it was some one who had come from a great distance, and was very tired; nay, I know from the impression produced upon my whole being that he must have patiently tired out himself in the afternoon with mathematical calculations." "Within me a wonderful but unhappy faculty has developed 'itself, which enables me in my calmest state of mind to recognize all the pains and weaknesses of men with whom I come in contact, nay, to know when some one places the minutest fibres of his brain into activity. I often must make a wide circuit to escape persons I meet on the street, particularly if they are sickly. At my first entrance into a room I know what each one suffers from."

Moritz's *Magazin für Erfahrungsseelenkunde* is full of similar facts, of which almost every person we meet can tell some circumstance. Stilling tells of a gentleman who, in a stormy, rainy night, in vain tried to go to sleep, an inner voice impelling him to go out over the fields. At length, unable to combat that voice, he followed his instinct, and arrived just in time to help a poor boy, who was vainly calling for assistance, in rescuing his father from imminent death. The horrible instances, so often reported by newspapers, of mothers butchering their children, and fathers killing their whole families, and then trying to commit suicide, are only to be explained by this utter loss of self-control, which makes the body a mere tool of the mechanical casualty-relation of nature. Hence such persons usually assert, with honest conviction, that they could not help committing their crimes, that they were impelled to it by a wicked demon. Bulwer has worked up this wonderfully impressive phenomenon in his *Strange Story*. There is no severer lesson against the harbouring of evil thoughts than that a mere evil thought in Margrave should lead another man to commit murder. For every evil thought, as the motion of a force, becomes part of the universal force of nature, and works out its evil. Hence we can actually feel the presence of evil thoughts in other persons, or grow warm and generous in the presence of sainted souls.

There is something terrible in the surrendering of our self-determination, and giving up our body to the working of the influences of mere nature. For as these influences develop the ferocity of the tiger, the bloodthirstiness of the lion, the

cruelty of the cat, or the cunning of the fox, so will they—when no longer controlled by reason—work out in man's body their mechanical effects. And what in animals does neither surprise nor shock us, in man becomes demoniac, for we cannot possibly consider him as an animal. Not the most obstinate materialist can stand this test. Even he will shudder to see man become the mere instrument of the forces generated in his body by the food he eats and drinks, and by the external circumstances which surround him; such as Vogl and Moleschott blasphemingly, theoretically assert all men to be.

The most frightful chapters of human crimes find their explanation only in this not possessing one's self, but being possessed. It is a well-known fact that even common night-walkers (somnambulists), otherwise of an amiable disposition, show in their trance condition a disposition to destroy and murder, and, usually, that which they hold most dear. A spirit of cruelty is awakened, which seems so utterly unnatural, simply because it is so utterly unhuman. Every day cases are reported of otherwise quiet, orderly people, suddenly butchering the very beings whom they most love—revelling in the shedding of blood, and in the piteous outcries of wives, husbands, and children, and taking the same pleasure in slowly butchering their own bodies. Persons whose nervous systems have been shattered and self-consciousness abandoned in the pursuit of the pleasures of voluptuousness, are generally the most cruel and inhuman. The terrible freaks of Nero, Tiberius, the Borgia, Cenci, &c., find their explanation in this every-day phenomenon.

An old French writer tells a story of a quiet, pious wife, who suddenly—it seems from a stoppage of menstruation—fell into fits of deep melancholy, which left her and returned with more or less regularity. In this condition the thought always arose in her that she ought to murder her husband, whom she deeply loved. The tortures which these murderous impulses produced in her she afterwards confessed were indescribable. Often she was also tempted to commit suicide, so that guards had to be placed over her. One day, when she seemed more quiet than usual, they allowed her to take a walk with her son. She took the smiling child by the hand, and went with him to a river, in order to drown both the child and herself. But, having walked up and down the bridge a few times, she walked quietly home, and henceforth was saved. She then

freely told all her troubles, and mentioned that every time she had been near committing a crime, a bright youth appeared to her, and told her to trust in God. Was not this bright youth the poor woman's own Psyche—her own bright Ego—protesting against ceding the body to the blind forces of nature, and claiming it as its own?

That material causes, physical diseases, stoppages of the body, sensual excesses, inordinate appetites indulged in, &c., often tend to bring about such a state of things, is not to be doubted. The freaks of many women, and their utterly unnatural mode of action, is often chiefly the result of physical disorder, the effects of which they have not trust enough in self-consciousness to overcome. A habit of blindly following physical instinct, likewise tends to surrender our body as a prey to its impulses. All writers on these dark and painful subjects of human life—dark and painful because they belong to our animal life, and show to what unnatural extent men are still controlled by that life, instead of controlling it—are agreed that all phenomena of this character are practised to greatest perfection amongst those people who have least self-consciousness. East India is the very paradise of witchcraft and sorcery.

There is, however, another class of men who vainly hope that, by surrendering self-consciousness, they may lapse into unity with the Deity instead of nature. Vainly, for there is no fact more clearly demonstrated by the history of these unusual phenomena, amongst all nations of the world, than that with the abandonment of self-conscious activity, the demon is not only likely but almost certain to obtain control over the body. All the phenomena of somnambulism, mesmerism, second sight, prophecy, &c., are the results of the absence of self-consciousness only, and man was created to be self-conscious, and sleep is his normal state when self-consciousness is suspended. Hence sleep offers precisely similar phenomena; but sleep refreshes and somnambulism weakens. Hence also the dreams in our sleep appear to us as not our own production. Like all these phenomena we ascribe them either to God or to the Devil. "In sleep," says Tycho Brahe, "our souls are with God." "Sleep," says Burdach, "is the melting together of life and soul—that is to say of self-consciousness and mechanical nature into animal consciousness." In the same way, and for the same reason, we hold the sudden "ideas"

which at times arise within us, to be not our own production, but sent either by God or the Devil, as the case may be. So also do preachers, who rely on "inspiration," as they call it, and are generally distinguishable by the nonsense which they utter, appear to themselves and to others as if another spoke through them. It is very difficult, however, to distinguish whether these results are worked by the good or the evil agency. Moses worked miracles and they were performed through God, but when Jannes and Jambres, to baffle him, worked the very same, they are said to have been moved by the devil. The Apostle Peter effected his miracles through the power of Christ, whereas the famous Simon worked by the aid of Beelzebub. And this Simon was by no means a common trickster, for he boasted: "If I were caught I could make myself invisible, and again at pleasure, appear present. If I resolve upon flight, I can pass through mountains and rocks, as if they were soft clay. If I throw myself down from a mountain, I reach the ground unharmed. If I am chained, I loosen my chains at will, and enchain my keepers. The doors of a prison open at my command. I can breathe life into images so that men hold them for living beings; at my beckon the ground covers itself with bushes, and new trees arise from out of the earth. I can show a twofold face and change myself into any animal, &c."* In like manner Leo, Bishop of Catevea, performed his miracles by the help of the saints, but the magician Heliodorus—no less pious a Christian than Leo—was reputed in league with demons. The wonderful performances of early Christians, told by Eusebius, Justinus, and Irenæus were all ascribed to the potent influence of the Holy Ghost; whereas, the no less strange miracles performed by the heathen were only ridiculed or condemned as acts of sorcerers. So also the marvellous stories told of Loyola, Xavier, and Franciscus of Assissi, were unhesitatingly placed to the account of their piety, while the no less wonderful achievements of Virgilius, Klingsor, Merlin, Trithem, and Faustus were pronounced the result of a compact with the devil; and whilst all the equally marvellous phenomena of modern spiritualism are credited, for variety's sake, to a countless host of so-called spirits.

But as yet we have only solved part of the second problem. We have only shown that immediate acts of cognition are possible; that there is a mode of obtaining empir-

* See *Recognitions*.

ical knowledge which is unlimited by time and space, and which we claim has, therefore, a valid ground of distinction from the ordinary mode of cognition, in that it is not to be ascribed to self-consciousness. But there is a vast distinction between acts of cognition and acts of external causality, a distinction already alluded to.

Miraculous cures are the most frequent of these occurrences. Generally, they are not merely the result of the influence of one individual upon another, but likewise of the medical effect of external objects (transplantation, &c., usually having been used in connection with that influence). Thus witches have been known from time immemorial to cure through mere bodily presence, song, or word, but usually some other medical process has accompanied the process. Thus the King of Epirus cured diseases through the touch of his feet.*

The Emperors Hadrianus and Vespasian cured blindness through mere touch. The wonders achieved by the Montanists are well known to all readers of ecclesiastical history; as well as the miracles of Apollonius, who cured, for instance, a case of hydrophobia by causing the mad dog to come and lick the wound. The cures of Plotinus,† the great Neoplatonist, are also well known. In fact, the whole history of the church is full of such cases, not the least marvellous of which are the famous miracles performed at the grave of the Diakonus Paris. The last mentioned case is important as giving the clue to the wonderful influence which thus seems to emanate from the human body even after death, stronger on account of the decomposition than during life. The recent phenomena in Morzine are probably of a similar nature. *How* the influence of the body works these cures, it is the business of empirical science to establish through a collection of facts; we have merely shown that the influence cannot be of an immediate character, and lies, therefore, within the scope of empirical science.

Such an empirical science, based upon this influence, has but one of the modes of reciprocal causality between external objects, but a mode under the leadership of the human will was, indeed, established by Mesmer, and has been amplified and perfected by Deleuze, Rousillier, in France, Schubert, Ennemoser, F. Hufeland, Kluge, Eschenmayer, Passavant, Kieser, &c., in Germany, Cederschoeld in Swe-

* Plutarchus in Pyrrho.

† Porphyry Plotini vita.

den, Van Ghert and Wolthers in Holland, &c. In our own country the matter is carried on in an utterly unscientific manner by the spiritualists.

So far, finally, as the working of spirit rappings, movements, &c., is concerned, but very few facts are established, and not near enough to say to what extent the influence emanating from the body can be made to move external objects. There is no reason why, as the magnet in the earth attracts through an unseen influence the needle of the compass, we also should not have in our body an influence to detract the needle from its usual direction when I direct that influence upon it through our will ; but to what extent this influence can be made to overcome physical resistance it is as impossible to tell, as it is to say how much a person may succeed in lifting, or to what extent man may develop the nimbleness of his fingers, or the strength of his legs. It is a matter of pure empirical experience. There is only one absolute limit to this force. It cannot, in any instance, overcome the body of a self-conscious person, and hence all the arts of mesmerism shatter here. No person on earth can overcome a man, clear and strong in self-conscious rationality.

We have said that there are few facts of reported external causality exercised in an apparently immediate manner ; and it is certainly curious that nearly all those acts resolve themselves into deceptions of the senses. Of the immense collection of anecdotes attributing wonderful deeds to wizards, devils, witches, &c., nearly all resolve themselves into such deceptions, or, in other words, into phenomena of mesmerism. But mesmerism always presupposes that the person mesmerized should himself surrender self-consciousness. One strongly mesmerised person influences a number of others, and makes them believe they see what they do not see. Even Lerchheimer notices this already. He makes a clear distinction between other arts of witchcraft and this phenomena of deception, which he calls Gaukeley. "Gaukeley," says he, "is working of the devil, whereby he blinds, confuses, and darkens the sight of man and animals, so that they do not see that which is, and see that which is not, or see that which is in other form than it truly is." Lerchheimer ridicules the idea that wizards or witches can influence the weather, or harm one's body or cattle. They cannot hurt, he assures us, any one who trusts in God. This distinction between mesmeric, deceptive, and actual

acts of causality of like character, has, indeed, been made at all times. Thus Jannes and Jambres are said to have merely made the Egyptian court *believe* that they saw the sticks change into snakes; whereas, Aaron actually did change them. Heliodorus takes up a stone and gives it to a soldier, who takes it for gold and can scarcely lift it. But soon the soldier sees that it is only rock and weighs scarcely four pounds. It is a common trick in all wizard stories that the magician goes to a church, and when the ladies come out makes them believe that they are crossing a large river.

Wizards always keep brilliant tables, but their guests get hungry immediately after rising, and this glorious state of tipsiness vanishes much sooner than would an actual intoxication. Virgilius, Klingsor, Merlin, Theophilus, Marshall, Luxemburg, Faust, and Wagner, all achieve their world-renowned tricks through this simple agency. Thus Faust once upon a time drove a large wagon full of hay drawn by two oxen through a narrow *two* feet wide and forty-nine feet long alley-way in Erfurt to the unbounded admiration of all the Erfurters. In like manner was the famous scene in Auerbach's cellar enacted as well as the calling up the shade of Helena and Paris before the Emperor Maximilian. They were mere tricks of mesmerism. Faust's scholar, Wagner, seems also to have learned the art well, for he made the people of Wittenberg imagine that they saw the whole tragedy of Faust performed upon an open field before their city, when he had invited them to come. A tragedy, in outlines not unlike that of Goethe's, seemed to be performed in open air, and it was only as the curtain fell upon a scene of hell's worse horrors, that the Wittenbergers discovered the whole to have been an illusion.*

That no person can be mesmerized who does not consent, is a well-known fact; clear self-consciousness is safe against all attacks of the devil, magicians, liver moods, and all other moods known to tend towards subjecting our body as a plaything to the forces of nature. We certainly can become, as Moleschott says we are, the creatures of what we eat, drink, and breathe, and it is only necessary to visit a lunatic asylum or prison-house, in order to witness the fair body of man, a flute upon which nature plays never aught but discords, precisely because the human body is an instrument

* See "The second report of Dr. John Faustus from the edition of 1594. Reprinted in Thomas Carly's English Prose Romances."

which nature does not know how to play. Only self-conscious reason can play it, and when it ; does, harmonies the most wonderful arise from it. All mankind and all angels in heaven shudder at the terrific sounds which mere nature causes to arise from our body ; but God himself trembles in the ecstasy of love when the mission of his sainted Son has achieved success in another self-conscious reason, completely controlling the wonderful machine entrusted to it, and by its means wafting upwards pæans of glorious deeds of religion and morality.

ART. VIII.—1. *Articles of Impeachment against the President of the United States.*

2. *Speeches in Congress, &c. March, 1868.*

WE are very unwilling to speak of the Congress of the United States as we feel its conduct deserves ; but the latter is of too grave a nature to be passed over in silence by any public writer. We shall not speak of it, however, as a politician. We are actuated by no partisan feeling against the party in power ; Radical, Republican, and Democrat are all the same to us, except so far as we think that one does better or worse than the rest. We dislike no man, much less do we condemn him, for the party to which he belongs. In proof of this impartiality we can say, that although many years a citizen of the United States, and quite as warmly devoted to its interests as if we had been born in it, we have never voted for the candidate of any party, for the reason that we do not care to compete with the class of persons who do most of the voting. The vote of the most ignorant hod-carrier or professional burglar would have as much influence on the result of the election as ours ; otherwise none would vote more cheerfully or more eagerly ; that is, if we saw any prospect of preventing the election of ignorant, incompetent persons.

But under our present system there is no such prospect, and it is precisely for this reason—because it is the most ignorant, reckless, and vindictive class who choose our legislators—that the President of the United States now stands arraigned as a malefactor ; although he cannot even be accused by his worst enemies with any serious offence—with any offence

calculated to imperil the least of the great interests of the country. We do not utter a word, however, as the champion of Mr. Johnson ; the gentleman has no claim whatever upon us, save that of right and justice. We do not regard him as the friend either of literature or science ; in short, there is nothing whatever in his tastes or character, so far as we are aware, which ought to prejudice us in his favour. Yet he has our warmest sympathy in his present position ; because he is persecuted, insulted, and sought to be degraded without any real cause.

We do not indulge in the language of passion when we say that the conduct of Congress towards the President, thus far, has been most tyrannical and vindictive. Not content with depriving him of every vestige of power by downright usurpation, the dominant party now seek to set the stigma of disgrace on him by placing it on record that he was ignominiously expelled from the Presidency. It is not he they will disgrace, however, but themselves ; on them and not the President will the infamy rest in the eyes of posterity.

In former numbers of our journal we have taken the pains to exhibit the opinions of the most eminent writers on international law, American and foreign, ancient and modern, to show that it was not the course of wisdom or patriotism, but of narrow-mindedness and despotism, to persist in governing the South by military law after the people in rebellion had completely submitted, and, in fact, were no longer able, even if they should be disposed, to make any serious resistance. We have shown that the most despotic monarchs have granted general amnesties under such circumstances to conquered alien races. But neither reason nor example has any influence on mere partisans who have no higher idea of legislation than the effect which they think it may produce on their party. It is idle to quote Grotius, Puffendorf, Vattel, Kent, and Marshall to convince such men, and we shall not put ourselves to the trouble in future. We may remind our readers, however, that those publicists that have felt most friendly to ourselves and our institutions have warned us against a species of tyranny and usurpation precisely such as that which Congress is now exercising with a high hand.

No one, it will be admitted, has done us more justice than De Tocqueville ; no one has proved himself more willing to recognise our virtues, and give them their due meed of praise ; but as a philosopher it was equally his duty to point out to us some of those defects in our system of gov-

ernment which, though inherent, might be guarded against by intelligent legislation, and he has done so accordingly. The party in power claim that because the people in some States continue to give them majorities it follows that they are right in putting the President on trial. This is the sort of logic to which De Tocqueville alludes when he indignantly exclaims: "I hold it to be an impious and detestable maxim, that politically speaking the people have a right to do anything."*

We trust there are few, if any, of our readers who need any proof of this, since they have only to remember that it was the people who put Socrates to death, who expelled and degraded Themistocles, and did many other atrocious and silly things of a similar character. In each case the minority had to look on with folded arms, if not with mute tongues; the divine Plato and his disciples, numerous as the latter were, and sympathized with by every intelligent and calm mind, could not save the philosopher from his fanatical persecutors. The majority were in favor of putting him to death, and it had the power of the despot to do so. "A majority, taken collectively," says De Tocqueville, "*is only an individual* whose opinions, and frequently whose interests are opposed to those of an individual who is styled a minority. If it be admitted that a man possessing absolute power may exercise that power by wronging his adversaries, *why should not a majority be liable to the same reproach?*"†

In the next chapter he shows how tyranny may be exercised in the United States by means of the law itself.‡ After fully discussing "the tyranny of the majority," he makes the following observations: "By this means habits are formed in the heart of a free country which may some day *prove fatal to its liberties.*" (p. 336.)

It ought not to be necessary to quote views like these in this country; but unhappily it is. There are large numbers who consider themselves highly enlightened that think it impossible for the majority of a representative body to be tyrannical. Not that the power of being so is denied to the majority; it is admitted that they possess the power, but denied that they are capable of exercising it unjustly or tyrannically, because the majority must be right!

A very energetic protest has been made against this theory by the minority in Congress who have voted against

* Dem. in Am., vol. 1., p. 330.

† Ib.

‡ Vol. 1., p. 335.

the impeachment of the President; and although the majority refused even to hear it read, no dispassionate mind capable of forming an intelligent opinion on the subject will deny that posterity will honour those who made it, while denouncing the majority as a body of vindictive partisans, whose chief motive was to retain power. We do not know a single one of those whose names are appended to this Protest; but we most cheerfully transcribe it for future reference. It is the longest quotation we have ever given; but its length is by no means disproportioned to its importance:

"The undersigned, members of the Fortieth Congress of the United States, representing directly or in principle more than one-half of the whole people of the United States, do hereby, *in the name of law and justice*, and in behalf of those they represent, most solemnly protest against the *tyranny and injustices practised by the majority of the House, in violating the sacred right of free debate and unconstrained deliberations*, upon the greatest questions ever brought before an American Congress—the rules of the House made for the protection of the minority, and by a strict adherence to which the weaker party can only be protected from those irregularities and abuses which the wantonness of power is but too often apt to suggest to large and successful majorities—have been during this entire Congress, in violation of their truer spirit and intent, *wantonly and unprecedentedly suspended and set aside*—not upon a particular and pressing matter, but upon all pending subjects of legislation, so that by this reckless and arbitrary suspension of the rules and the wanton abuse of the previous question, the rights of the minority have been utterly disregarded, the House of Representatives *has ceased to be a deliberative body*, and the minority have been compelled to vote upon the most important questions without any proper or reasonable time for debate or consideration. To such an extent has this *dangerous and oppressive practice* obtained that measures affecting vitally the whole country and the dearest interests of our constituents, tending, as we believe, *to the subversion of our republican form of government*, in their very nature demanding of the people and representatives the most careful examination and scrutiny, have been hurried through the forms of legislation without being printed, without one word of debate or one moment's consideration; without, indeed, the opportunity of the undersigned to protest, except in violation of the then operating order, enforced by the majority, as the order of the House.

"These alarming abuses of power might not seem to demand this formal protest, if we were not forced to the belief that a determined intention exists with the majority to revolutionize this Government *by destroying the other co-ordinate branches, and vesting all the powers of the Government in Congress*, in the steps taken to depose the President of the United States. We are admonished that there is no end to these oppressive measures to cripple the power and *silence the voice of the minority*. The resolution was rushed through the House under the operation of the previous question. Referring the matter to the Committee on Reconstruction, the Committee, in hot haste, sitting when the House was in session, in violation of one of its express rules, considered, and by a strict party vote, adopted and presented it again to the House for its action. And then was exhibited one of the most extraordinary spectacles ever witnessed in a deliberative parliamentary body. Members were

allowed, some thirty minutes, some twenty, some ten, some five, and some one minute only to discuss *the most momentous questions ever presented in Congress*. Many could not even get one minute under the arbitrary rule of the majority; and more than half of those were of the party voting to enforce the previous question, who desired to be heard, were permitted only to print speeches in the *Globe*, after the question upon the resolution was decided, and which were never delivered in the House. No comment can demonstrate more completely than the facts themselves *the viciousness and illegality of such proceedings*. But this wanton and excessive use of the power of the majority does not stop here. While the Committee were in session upon the further proceedings to remove the President, and in anticipation of its action under the operation of the 'previous question' without debate, in violation of an express rule, new, special, and most extraordinary rules for the conduct of this proceeding, changing, without previous notice, the standing rules of the House, were adopted, to further limit debate, and more completely to place the minority in the power and at the mercy of the majority. Thus, while the majority of Congress are warring upon the other co-ordinate departments—the Executive and the Judicial—*endeavouring to subjugate and bring them both under the rule and control of Congress*, the minority of the House of Representatives are steadily and surely being stripped of all power, and their constituents deprived of all representative voice in the counsels of the Republic.

"We do, therefore, most solemnly protest against the indecorous and undignified haste with which the majority of this House inaugurated, presented, and rushed through, by a strict party vote, in plain and palpable violation of one of the standing rules of this House, a resolution demanding the impeachment of the Chief Magistrate of the people for alleged high crimes and misdemeanors in office, when the gravity of the charge, the character of the high office against which this attack was directed, and the unforeseen and tremendous consequences which might result therefrom to the peace and prosperity of the people, *called for the exercise of the calmest and wisest judgment*, the most unprejudiced and impartial deliberation on the part of those who had such proceedings in charge.

"We do most solemnly protest against this thrice repeated attempt to *degrade and break down one of the great co-ordinate branches of the Government*, through the spirit of party hatred and vengeance against the person who, by the Constitution, is in the rightful and conscientious discharge of its functions, thus consuming the precious time which ought to be faithfully devoted to an earnest effort to relieve the pressing wants of the people, a restoration of a torn and distracted country to union and good order, and to lightening the burden of a taxation which is pressing down all the energies of trade and commerce to the point of universal bankruptcy and ruin. We do again most solemnly protest against and profoundly deprecate and deplore any and *all attempts to array in hostile antagonism* to each other, any of the Departments of the Government upon the mere question of the constitutionality or construction of a law of Congress, the proper jurisdiction and final adjudication of which belongs exclusively to the Judicial tribunals; and we, hereby, warn the people of the United States, *that the public liberty and the existence of free institutions are involved in this suicidal struggle, and that they are in imminent peril of utter overthrow*.

"We do further most solemnly protest against that wild and radical spirit of innovation upon the early and well-settled practice of the Government—a practice established by the men who framed the Constitution, and who best understood its spirit and meaning—which put the Chief Magistrate

of the Republic—the representative of the dignity and power of the people—at the mercy of one of his subordinates assuming to be Secretary of War in violation of his own pronounced convictions of the law: who has the unblushing effrontery to place himself in the unwarranted position of communicating directly with Congress,—in utter contempt of the authority of his superior, and with the deliberate purpose of resisting his authority.

“The undersigned, therefore, in character of representatives of the people, being deprived by the despotic power of an inexorable majority of the high privilege of debate, that great instrument in the discovery of truth and the most cherished heritage of a free people, do hereby solemnly and earnestly protest against these infractions of the rights of the people, and respectfully ask that this, their protest, may be spread upon the journal of the House.

Charles A. Eldridge, P. Van Trump, George W. Woodward, W. Munger, Stephen Taber, George M. Adams, George W. Morgan, L. G. Marshall, D. M. Van Auken, Thomas Laurenz Jones, W. H. Barnum, John A. Nicholson, E. D. Holbrook, F. Stone, Charles E. Phelps, James M. Cavanaugh, Charles Haight, Lewis W. Ross, L. S. Trimble, R. D. Hubbard, J. S. Galladay, John W. Chanler, Julius Hotchkiss, Samuel B. Axtell, W. E. Niblack, W. S. Holman, Demas Barnes, A. J. Glossbrenner, Lawrence Getz, B. M. Boyer, Stephenson Archer, Albert G. Burr, James A. Johnson, James B. Beck, Asa P. Grover, J. M. Humphrey, John Fox, John V. L. Pruyn, Samuel J. Randall, James Brooks, H. McCullough, J. P. Knott, Charles Sitgreaves, M. C. Kerr, James R. McCormack.”

There is nothing intemperate in this, nothing that is merely partisan, but much solemn truth; in all which characteristics it contrasts very strikingly with the documents emanating from the majority. Those who encourage Congress in its usurpations and tyranny inform us that the British Parliament is the ruling power in England; that as such it is ‘omnipotent,’ &c. But a little reflection will show that this is as fallacious as most other arguments adduced by the dominant party in justification of their vindictive and oppressive measures.

Parliament may introduce and pass all the measures it chooses; but they have no validity any more than so much waste paper until they receive the royal assent, which the sovereign may withhold whenever disposed to do so. If Parliament persists in enacting obnoxious measures the sovereign can dissolve it altogether; nor has the new Parliament any more exemption than the old from having its measures vetoed and rendered null and void. How can it be said, then, that Parliament is omnipotent, or that the King or Queen has no more power than our President?

Again, her Majesty has not only the power of appointing her own ministers, but also the power of dismissing them whenever she becomes dissatisfied with their services. She has

no need to consult Parliament on the subject. Besides, all her ministers are members of either House, including the Premier and principal Secretaries, so that if any of them are censured or assailed in Parliament they have an opportunity of confronting their accusers, and defending themselves. Not only does her Majesty change her ministers as often as she thinks proper—the only restriction on her conduct in that respect being that she may sometimes find it difficult to get others in their stead; but she authorizes her Prime Minister to be equally free in his selections. The Premier may make any one he chooses Principal Secretary for any of the departments, and can dismiss him just as readily without any authority from Parliament.

If the ministry thus chosen by the sovereign fail to carry any measure they introduce, they do not wait to be ejected from office; in nine cases out of ten they resign if there is the smallest majority against them. As for the Secretary of War, of State, or of the Colonies persisting in retaining office when the head of the government informs him that his services are no longer needed, that his presence in the cabinet is rather offensive than otherwise, there is no instance of the kind on record. If Mr. Disraeli, the present Prime Minister, informed the Secretary of State, the Chancellor of the Exchequer, or any other member of his cabinet, that he wishes to dispense with his services, he would surrender his portfolio at once. He would no more think of pursuing the course of Mr. Stanton, than he would force himself to be the tutor of a private gentleman who not only refused to receive his instructions, but forbid him to come near his residence. Such a proceeding would expose him to the derision and contempt of all who knew him; in short, it would be utterly impossible; and had Mr. Stanton not happened to get into the War Department, we think it would have been equally impossible in this country.

The principles of Mr. Seward have indeed considerable elasticity. Like the Vicar of Bray, he could modify them every month if a new President were elected so often. In short, his policy would assume any form that might be deemed necessary to enable him to retain office; in doubtful cases he could lean a little to both sides, alternately, like the Pythian goddess, so that when the proper time arrived he could interpret his language in accordance with accomplished facts. All this and a little more our Secretary of State would do without much scruple. Still we doubt

whether he would persist in continuing a cabinet minister after he was plainly informed by the President, as Mr. Stanton has been, that he had a decided objection to his belonging to the cabinet any longer. No : tenacious as our worthy Secretary of State is of the loaves and fishes, and fond as he is of writing long letters, and printing them in ponderous tomes at the public expense, we are sure that he would shrink from so low a depth of meanness as that to which Mr. Stanton has descended.

But to return for a moment to the parallel sought to be established between Congress and the British Parliament. It must be remembered that, in addition to the powers and prerogatives already specified, the sovereign has also the appointment of all the great legal functionaries, from the Lord Chancellor downwards, as well as of all the officers of the army and navy. Nor is it by any especial courtesy that Queen Victoria enjoys all those powers and privileges ; they have been enjoyed and exercised by her predecessors for centuries. How absurd it is, then, to seek to justify the present disgraceful exhibition at Washington by the usages of the British Parliament ! Only once has the latter body afforded any precedent for such proceedings ; that is when it determined to crush the unfortunate Charles ; and for this it was duly punished and humiliated by one of its own members. And very few thinking men, whether Englishmen or foreigners, have blamed Cromwell for driving out that fanatical, base Parliament at the point of the bayonet, as if they were a parcel of thieves and burglars.

But it is not alone the President the present majority in Congress would reduce to a nonentity ; they would pursue the same course towards the Judiciary Department of our Government ; and for this also some of their organs pretend to find a parallel in the usages of the British Parliament. It is true that the House of Lords is the highest court of appeal. But who constitute this high court ? Certainly not political partisans and fanatics, but the most learned jurists in England—generally men who have distinguished themselves, first at the bar, and subsequently on the bench, and who have been raised to the peerage by different ministries as the reward of that distinction. These profound and eminent lawyers are very appropriately called the Law Lords ; and this is the tribunal, with the Lord Chancellor at its head, which tries every appeal brought before the House of Lords. When it is remembered that the judges of England

are entirely independent even of the sovereign that they cannot be removed except on being convicted of bribery or high treason, it will be admitted that it is not likely that they will permit themselves to be swayed by partisan feeling when sitting in the House of Lords as a high court of appeal, whose decision will be criticised by the greatest minds, not only of England but of all Europe and America. And it is but rarely they have disappointed the confidence which they thus inspire. When appealed to in times of the greatest political excitement, against judgments rendered by the Court of Queen's Bench in prosecutions instituted by Government, their decisions have in many instances been in favour of the appellant. There are several memorable examples of this; but suffice it to mention that of Daniel O'Connell and his fellow "traitors," who, although convicted by the Court of Queen's Bench in Dublin of "high crimes and misdemeanors," and imprisoned in Richmond Penitentiary in that city, "were liberated by the House of Lords, Lord Abinger, one of the greatest English jurists of his time, declaring the jury empannelled by the Government prosecutors "a delusion, a mockery, and a snare."

If Chief Justice Chase has the wisdom and moral courage to avail himself of it, he has now an opportunity of rendering himself quite as illustrious as Lord Abinger; he has an opportunity of causing himself to be quoted as an authority in favour of constitutional government and the rights of man, against usurpation and tyranny, by the jurists of all future ages. We should be glad he would do so, if only for the honour of a profession which none hold in higher estimation than we do ourselves. It is his duty to bear in mind that it is not the President alone whom the present majority in Congress seek to degrade, but also the Judiciary branch of the government; that of which he is himself a member. But he cannot perform this duty—he cannot rank himself among the Abingers, Plunkets, Denmans, Storys, &c., except he severely rebukes some of the managers of the impeachment. He should tell men like Butler and Bingham that their conduct and language are disgraceful; that they are fit only for the atmosphere of the lowest police court, whose judge is only the representative of the thieves, burglars, and cut-throats who are brought before him for trial, and for whom he is supposed to have some sympathy. Nor should he fail to object to several who assume to sit in judgment with him, on the ground that they are notoriously prejudiced

against the accused. Most particularly should he object to "old Ben Wade," who, besides being fanatically prejudiced, is deeply and, we may add, disgracefully interested in the result of the trial. The Chief Justice would be perfectly justified in taking into consideration that a man like Wade would be a very unsuitable head for a great nation like this, even for one week. If our ambition were to make progress in swearing and almost every other species of vulgarity and coarseness—that is, if we wished to cause the rising generation to acquire the habits and manners of the Bowery, by the force both of example and precept—then, indeed, we should make Ben Wade our President as soon as possible. The Chief Justice may confine himself to a reason or two for the exclusion of Wade; it is sufficient to say that he is a prejudiced and interested party; for every intelligent person who is not prejudiced knows what that distinguished person is besides. In short, if Judge Chase will simply do his duty in his present position, his conduct will go far to prove that those—ourselves among the number—who have much more respect for the decision of the Supreme Court of the United States than for any bill passed by the Congress of the United States as at present constituted, have right and reason on their side.

We would fain hope that the Senate will yet vindicate its honour; that it will discard partisan feeling, and calmly remember what the world has a right to expect from it. We would earnestly urge it to look for an example to the Senate of ancient Rome, in Cicero's time, or to the British Law Lords, who, as we have shown above, have acted in the true spirit of Magna Charta, rather than to the Venetian Senate and its Council of Ten, whose infamous career we have sketched to its ignominious downfall in another article, in the present number of our journal. It is still in their power to make the farce pass off harmlessly, and save themselves from derision and mockery. The world already asks with sneers and scorn, what sense or consistency is there in allowing the President of the rebel confederacy to go free—him who did all in his power to overthrow the government—while vindictively prosecuting and persecuting the President of the United States, who is not even pretended to have made any effort of the kind. To this it may be replied that President Davis will also be tried. But has President Davis been allowed time to prepare his defence? Has he been refused forty days for that purpose? Has he not been

allowed more than a hundred days? We do not object to this; on the contrary, we hold that it is right that he should be allowed abundance of time. But we would have at least the same privilege allowed the President of the United States, who has done much more to save the Republic than to destroy it. In our opinion, if the time allowed him were extended to the 4th of March, 1869, it would be a much more sensible proceeding than to press forward in hot haste a proceeding so disgraceful, which, when the moment of reflection arrives, cannot fail to bring odium and contempt on its authors—not excepting those unprincipled and greedy demagogues who expect to profit most by the downfall of the President of the United States.

IX.—NOTICES AND CRITICISMS.

HISTORY AND TRAVELS.

The Huguenots; their Settlements, Churches, and Industries in England and Ireland. By SAMUEL SMILES, author of "Self-Help," "Lives of the Engineers," &c., with an Appendix relating to the Huguenots in America. 8vo, pp. 448. New York: Harper & Brothers, 1868.

MR. SMILES is certainly a useful writer. Hitherto he has occupied himself almost exclusively with books for the young, and no one has succeeded better in that department. His "Self-Help," and "Lives of the Engineers," are not merely interesting; they are replete with the best of all lessons—those learned from example. That poverty and the social disadvantages inseparable from it discourage hundreds of young men of fine natural talents, from attempting to attain eminence, is but too well known; and it is equally well known that the most brilliant successes in life may be traced to the influence of example. Mr. Smiles has undoubtedly done much good in this way; and, accordingly, he is entitled to an attentive and respectful hearing when he enters a new field.

The work now before us is very different from either of those mentioned; it is much more elaborate, more excitingly interesting, and more valuable. We have read several histories of the Huguenots by Protestants and Catholics, but not one that is altogether impartial. That now before us forms no exception to the rule. The author has a strong prejudice in favour of the Huguenots, or rather against their opponents; but he is not a bigot. He tries to be fair; with this view he examines numerous authorities, and in general he is successful. But even when his

sympathies lead him a little too far he does not fail to interest us by his discussions, especially as he seldom undertakes to decide any controverted point without presenting us some curious scrap of forgotten history, an extract from the private letter or journal of some celebrity, or a *morceaux* from some secret and mysterious protocol, attributed to King, Emperor, or Pope. Even when the genuineness of these may be somewhat questionable, they have still a certain attraction; for, if they are spurious, Mr. Smiles was not their forger; and there is no story so incredible but that time may invest it with interest. No one believes any longer that Romulus and Remus were nursed by a bear, as recorded by several classic historians; yet the bear story is reproduced year after year. And if Pagan Rome loses none of her *éclat* by slight mistakes on the part of the historians, there is no good reason why Christian Rome should suffer very seriously from similar blunders.

Precisely because Mr. Smiles discusses and examines as we have said, he often places the truth before us even when he is evidently somewhat biased. Thus, while in one place he severely censures the Pope and the Catholics for persecuting the Huguenots, he frankly admits in another that the chief representatives of the Catholic Church in France were disposed to deal gently with the heretics; in short, the conclusion which any disinterested reader would arrive at on perusing his narrative is, that the persecution of the Huguenots was much more political than religious. We do not remember any passage in which the author makes any admission of this kind in express terms; but we can easily show that some of his statements tend very strongly in that direction. Thus, in his account of the renewal of the persecutions in France, he informs his readers that "Cardinal Richelieu vigorously prosecuted the war against the Huguenots whenever they stood in arms against the king. His operations were uniformly successful. The Huguenots were everywhere overthrown, and in the course of a few years they had ceased to exist as an armed power in France. Acting in a wise and tolerant spirit, Richelieu refrained from pushing his advantage to an extremity; and when all resistance was over, he advised the king to issue an edict granting freedom of worship and other privileges." (p. 130.)

Now, when we remark that the author impugns the motives of the Cardinal in the following sentences, we shall have given a pretty accurate general idea of the spirit in which Mr. Smiles writes. "The astute statesman," he says, "was doubtless induced to adopt this course by considerations of state policy, &c." It seems to us that when one performs good acts of any kind, it is at least charitable to presume that the motives that prompted them were good also. A little further on Mr. Smiles shows that another distinguished Cardinal was equally well disposed towards the Huguenots, as long as they remained peaceful and loyal. "Cardinal Mazarin," he says, "then Prime Minister, frankly acknowledged the

loyalty of the Huguenots. 'I have no cause,' he said, 'to complain of the little flock; if they browse on bad herbage, at least they do not stray away.' " (p. 131.)

Another much-abused personage receives some justice at the hands of Mr. Smiles. Every Protestant writer of a certain class who expresses any opinion of the persecutions of the Huguenots, seems to regard it as incumbent upon him to denounce Catharine de Medicis as the most intolerant and cruel of bigots. Mr. Smiles does not feel that he should entirely disregard so popular a habit. He tells us how, artfully, she contrived a marriage between her daughter Margaret and Henry of Bearn, king of Navarre, chief of the Huguenots. (p. 53.)

Was not this, after all, rather a proof of liberality than of bigotry? In our view bigoted mothers are more likely to prevent their daughters from marrying those of a different faith than to exercise any art in bringing the parties together, and making them love each other. But Mr. Smiles shows in another way that Catharine was neither so superstitious nor so ruthless as the controversialists represent her. He brings to light a letter of hers to the Pope which is but little known in English literature, and in which she defends rather than condemns the Huguenots. "The number of those who have separated themselves from the Roman Church," she says, "is now so great that they can no longer be restrained by severity of laws or force of arms." She then proceeds to speak of their "becoming more and more formidable in all parts of the kingdom," as a political body. She makes no bigoted or bloodthirsty comment; but on the contrary. "In the mean time," she says, "by the grace of God there are among them neither Anabaptists, nor libertines, nor any partisans of odious opinions." (p. 53.)

We need give no further instances of the fairness of Mr. Smiles in his discussions of topics, which are generally regarded as chiefly sectarian. Although we do not allow our Protestantism to carry us so far as our author goes, yet we know no Protestant historian of the Huguenots that indulges in fewer accusations, or makes more concessions.

But if we consider the work before us without any reference to Protestants or Catholics as such, we shall find that it sheds considerable light on the civilization of the nineteenth century; indeed, it teaches some lessons which the author himself had hardly contemplated. Thus our readers are aware that for some twenty years past it has been a favourite theory among a large, but not very profound or thoughtful class of writers, to ascribe everything great and good we have to the Anglo-Saxons. Mr. Smiles does not expressly contradict this, or say that we are more indebted to the French, after all, than we are to the Anglo-Saxons. But this is the tendency of his book, and we are rather inclined to think that he is right. He shows what large numbers of intelligent Frenchmen

belonging to all trades and professions, settled in England, Ireland, and Scotland. Not content with showing the extent of the migrations of this character which took place from time to time, he gives sketches of many of those Huguenot families who have attained literary, scientific, or professional eminence, or became the possessors of hereditary estates and titles in their adopted country.

This is a highly interesting feature in his book; and, unlike the Anglo-Saxon theory, it is founded on indisputable facts. Perhaps the most remarkable part of it is that large numbers of the descendants of those Protestants who left their native country through hatred of popery, as we are informed, are now, and have been for generations, ranked among the strictest and most pious Catholics. To this fact we can bear testimony from personal knowledge. We could give many instances, but we prefer to present our readers some of those families indicated by Mr. Smiles, which include those of the founders of some of the most important of the manufactories to which Great Britain owes so much of her wealth at the present day. The following extract affords pretty fair specimens of the manner in which the French have altered their names for the purpose of Anglicising them :

"The great French immigration which ensued on the last-name event^o being the most recent, has left much more noticeable traces in English family history and nomenclature, notwithstanding the large proportion of the refugees and their descendants who threw aside their French names and adopted them in an English translation. Thus L'Oiseau became Bird; Le Jeune, Young; Le Blanc, White; Le Noir, Black; Le Maur, Brown; Le Roy, King; Lacroix, Cross; Le Monnier, Miller; Dulau, Waters; and so on. Some of the Lefevres changed their name to the English equivalent of Smith, as was the case with the ancestor of Sir Culling Eardley Smith, Bart., a French refugee, whose original name was Le Fevre. Many names were strangely altered in their conversion from French into English. Jolifemme was freely translated into Pretymán, a name well known in the Church; Momerie became Mummery, a common name at Dover; and Planché became Plank, of which there are instances at Canterbury and Southampton. At Oxford the name of Willamise was traced back to Villebois; Taillebois became Talboys; Le Coq, Laycock; Bouchier, Butcher, or Boxer; Coquerel, Cockerill; Drouet, Drewitt; D'Aeth, Death; D'Orleans, Dorling; and Sauvage, Savage and Wild. Other pure French names were dreadfully vulgarized. Thus Condé became Cundy; Chapuis, Shoppee; De Preux, Deprose; De Moulins, Mullins; Pelletiere, Pelter; Huzghens, Huggins, or Higgins; and Beaufoy, Boffy!"—P. 311.

Many of these are as good Catholics as we know; this is true, for example, of Higgins, Mullins, Smith, Miller, Waters, &c. Upon the other hand it may be remembered that there have been no more zealous champions of the Anglo-Saxon theory than persons bearing the names of King, White, Young, &c. Mr. Smiles shows that among the English and Irish peerage are many descendants of the Huguenots, and that there are but few of the remaining peers who have not intermarried with French families. This is true of the Duke of Bedford (Russell), the Duke of Devonshire (Cavendish), the Duke of Leeds (Osborne).

* The revocation of the Edict of Nantes.

Lord Eversley (late Speaker of the House of Commons) is descended from a Huguenot family; so is Lord Rendlesham; so are the Earls of Taunton and Romilly, and the Earl of Clancarty, Ireland. Among other descendants of the Huguenots who have distinguished themselves are the Laurens, De Farrens, Espenasses, Favere, Le Bas, &c., whose families are still well known in Ireland. Le Fevre, who taught the first school in Portarlington, Ireland, and who was the founder of the Charter Schools, had the same origin; so had Chief Justice Lefroy and Judge Perrin, of the Irish Bench.

Were we to mention all the descendants of the Huguenots who have distinguished themselves, we should fill pages with the mere names; but strangely enough it would be found, as already remarked, that the large majority have become Catholics. Among those who have done so recently is the celebrated Dr. Newman, of Oxford University, whose example is likely to be followed by a still more celebrated descendant of the Huguenots, namely, the Rev. Dr. Pusey, of the same University. We think we have said sufficient to show that the work before us is highly interesting. The volume appropriately closes with a sketch of the Huguenots in America, from the pen of the Hon. G. P. Disosway, and reference to all parts of it is greatly facilitated by a copious alphabetical index. Those who will read Thierry's "Conquest of England by the Normans," in connection with Mr. Smiles' "Huguenots," will be in no danger of ever being affected by the Anglo-Saxon mania, while those labouring under it at present may calculate on an effectual cure.

Spiritual Wives. By WILLIAM HEPPWORTH DIXON, author of "New America," &c. 8vo, pp. 476. Philadelphia: J. B. Lippincott & Co. 1868.

Just a year ago* we sketched the character of Mr. Dixon's "New America," showing what great admiration he had for the Mormons and the Negroes, especially for the former. We showed that he thought much more highly of the ladies of Utah, than those of America in general; that he regarded the latter as too independent, &c. In short, he informed his readers that our ladies have very little, if any, virtue, and he accounted for their viciousness by the statement that they are too scarce. Even in New York, Philadelphia, and Boston, there are not women enough; and hence there is more vice in those cities than in any of the great cities of the old world.

But among the Mormons it was altogether different; there, there was no vice, because the disparity was on the other side. Each man had from half a dozen to a score of wives; he watched all so well that they had no opportunity to be vicious;

* See No. for March, 1867.

and had it been otherwise there were not men to seduce them, or be seduced by them. The comparatively few men who were about had wives enough of their own—so many that they had neither the time nor the inclination to devote much attention to the wives of their neighbours; and accordingly Utah was quite a virtuous place!

Some eighteen chapters of "New America" were devoted to such logic as this; and they were duly interspersed with highly laudatory descriptions of the male and female saints, especially of the latter, who were represented as very good specimens of the sex. Although Messrs. J. B. Lippincott & Co. were never very discriminating in their publications, but were actuated chiefly, if not solely, by the question of dollars and cents, we thought they ought not to have put their imprint on a book that grossly insulted the women of America of all ranks, conditions, and creeds, with the sole exception of the Mormon women.

But "New America" was a respectable and inoffensive work compared to that now before us. It has been denounced by every respectable literary journal in England as utterly unfit for publication. In his former publication the author confined his glorification of licentiousness and vice to his chapters on the Mormons of Utah; but his present performance treats of nothing else but licentiousness and lewdness. He has searched Europe and America for illustrations of unbridled lust and debauchery, and given us the results of his researches in "Spiritual Wives." In other words, he has collected all the "spicy" scandal and obscenity he could find, and dished up the loathsome compound to us in this volume, taking care not only to repeat his charges against the women of America, but to exhibit them in a still more offensive light than he did before. But it seems that nothing of the kind is too indecent for the imprint of Mr. Lippincott. We do not know that the new book has had anything to do with the separation which has recently taken place between that gentleman and two or three of his partners in the publishing business; but if it has we cannot wonder, but rather think they did well to incur no part of the odium of "Spiritual Wives."

If a man is vicious in private—that is, disposed to practise the Mormon morality—it is a serious defect in his character; but he is harmless and excusable compared to the person who, not content with being licentious, glories in his licentiousness, and does all he can to induce others to follow his example. We do not pretend to know what may be the private practices of either Mr. Dixon or his American publisher, nor is it any of our business to inquire. For aught we know both may be as chaste as Caesar's wife, but their book is obscenely vicious. No moralist worthy of the name will deny that it is less reprehensible on the part of an author to be immoral in his personal habits than in his writings, because in the former case he does much less injury to society than in

the latter. Nay, it may be admitted that one who is an advocate of morality in his writings makes amends to society, at least to a certain extent, for having sometimes allowed his passions to control his reason in private life. Juvenal, the most powerful of the Roman satirists, was by no means a Stoic in his relations with the fair sex; he is greatly misrepresented if he did not appreciate their charms as much as most of his contemporaries, but he respected public decency and admired virtue nevertheless. Accordingly, who that is acquainted with his satires does not forgive him to-day for his private weaknesses? Even Seneca himself was not a more severe moralist than was Sallust in his writings, although the latter is said to have been expelled from the Senate-house for having influenced his neighbour's wife according to the Mormon plan. If the author of the *Bellum Catilinarium* was really guilty of this offence, he made no boast of it, but, on the contrary, denied it to the last; if his conduct was vicious in general, he was not guilty of the baseness of publishing in his writings the names of all the ladies who had favoured him with their confidence. So far as we know, it is only modern authors who practise this sort of gallantry; and, accordingly, we presume it may be ranked among the "modern improvements."

Be this it may, no one makes freer with male and female names than Mr. Hepworth Dixon. We readily admit that a large number deserve to occupy the position they do in his pillory; but it is not as a punishment that he holds them up for exhibition in this manner, but rather as a reward for their "progressive" spirit and "independence," and apparently as an encouragement to others to follow their example. None who would accept our author's character of the women of America could wonder if half the States of the Republic were Mormon States. After telling his readers what are the consequences to which lewd women have to look forward in respectable and well-ordered countries like England and France, he proceeds to show that there is no such restraint in this country; that the ladies are so scarce with us we are obliged to give the few we have their own way in everything, especially the right of loving and caressing as many men as they choose!

"In the United States it is not so. The great disparity in the two sexes, which in that country makes the female master of the situation, has deprived society of the conservative force engendered by fear and shame. No woman in that country needs to care whether she offends or not. If she is right in her own belief that is enough; she is hardly more responsible to her lover than to her groom."—*Spiritual Wives*, p. 381.

According to Mr. Dixon, all this is not only allowed but encouraged. "Free love," he says, "instead of being universally condemned, has in America its poets, orators, and preachers; its newspapers, lecture halls, excursions, picnics, colonies, &c." (Ib.) After making some further statements of the same character our author proceeds to give long extracts

from "poems" on "Free Love," "Free Marriage," &c. What morality, or decency, is to be expected in a country where the women have neither fear nor shame? Accordingly there is a large part of "Spiritual Wives" which is too obscene to be quoted even as a specimen of nastiness calculated to excite the scorn of the reader. Whole pages are filled with the boasting, indecent confessions of unprincipled profligates, who, although highly praised by our author, would be no more allowed into respectable society in New York, Boston, or Philadelphia, than thieves or burglars.

We cannot sully our pages with extracts from such a work; it must suffice to give the titles of some of the chapters—such as the following: The Abode of Love; Within the Abode; Gospel Love; Confession of Father Noyes; Worden's Confession; Pious Courtship; Noyes on Spiritual Love; Heavenly Bridals, &c., &c. In short, if Mr. Dixon is to be believed, America is a sort of Free Love brothel, from one end to the other. All classes and creeds, the old as well as the young, indulge in Free Love; and all who come amongst us run the risk of being ruined in their morals.

Yet the truth is, that no people are more largely represented at Utah than the countrymen and countrywomen of Mr. Hepworth Dixon. It has never been our habit to disparage the people of any country, but although we have never said so before, it is beyond question that, as a whole, the women of America have far more delicacy and virtue than the women of England. When Daniel O'Connell used to say in his public speeches, in reply to the abuse of the *London Times*, that English women in general were mothers before they were wives, and rather boasted of their "love children," we thought he exaggerated the facts. Even now we believe there are virtuous, good women in England—as exemplary specimens of the sex as are to be found in any other country; but we do not hesitate to affirm, that, if a hundred American women, taken indiscriminately from the respectable class of society, be compared with a hundred English women, taken, in a similar manner, from the corresponding class, at least a dozen of the latter will be found of "easy virtue," or in favour of the Mormon system, for every one American woman who has the same failing.

Churchman's Calendar for the year of our blessed Lord Christ, 1868. Designed to exhibit an actual View of the Holy Catholic and Apostolic Church in all the world. No. viii. 24mo. pp. 264. New York: General Protestant Episcopal Sunday School Union. 1868.

WE have seen some "High Church" criticisms on this little volume, which, we think, neither evince good taste nor Christian feeling. It is all wrong, according to the "evangelical" critics, because it has not excluded the Catholic and Greek hierarchies, and occupied their places with those of about ninety so-called Christian sects which can boast of "the

modern improvements." It seems the Mormon Church would have been more acceptable to our new evangelists than that "effete institution" called the Church of Rome. Curiously enough, because the compiler had better taste and a more enlightened liberality than this, he is sneered at as a "bigot." No wonder that those who preach in this style should be occasionally arraigned for being busybodies, and minding other people's business instead of their own; nor can we deny that they deserve to be publicly rebuked by their bishops.

Need we say that it is not the learned of the Protestant Episcopal Church who evince this narrow-minded spirit towards the two ancient branches of the Christian Church. It is not the spirit of the great theologians of Oxford and Cambridge; and we think that every unprejudiced reader will admit that, in imitating the example of those renowned institutions, the General Theological Seminary of New York, one of whose professors is the editor of the Churchman's Calendar, is in no danger of incurring the charge of bigotry in the estimation of any enlightened community.

The Churchman's Calendar confines its hierarchical information to "lists of the Episcopate of the Anglican, Gallican, Russian, and Oriental branches of the Church, corrected as far as practicable up to the date of publication." True it gives the names of ninety-two other sects, all of which are more or less "evangelical." But the most unpardonable "bigotry" of all is evinced in those pages in which we have the members of the Sacred College, with dates of birth and appointment of the Cardinals, &c.

A still more "bigoted" performance, if possible, is to indicate the Catholic provinces in the United States, and to speak respectfully of the Catholic bishops and archbishops. Thus, for example, under the head of "archbishops," we have the following: "1. BALTIMORE. Most Rev. Martin John Spalding, D.D.; consecrated September 10, 1848; translated to this diocese May 6, 1864. This Archbishop is the first ecclesiastic in rank in the United States." If it had been added that there is no ecclesiastic anywhere that better deserves his rank, it would have been only the simple truth, but would no doubt have been very "bigoted." In a word, if it be low churchism to respect and honour those who deserve to be respected and honoured, then we glory in belonging now, as we always have belonged, and our fathers before us, to the Low Church. We esteem and regard Archbishop Spalding, the Catholic, quite as much as we do Bishop Potter, the Protestant, and that is emphatically much, for when a foreigner and a stranger more than a dozen years ago, we found the latter a kind, generous friend.

A Journey in Brazil. By Professor and Mrs. LOUIS AGASSIZ. 8vo, pp. 540. Boston: Ticknor & Fields. 1868.

HAD this interesting work fallen into our hands in time it would have afforded us pleasure to review it, and present our readers some specimens of the good things it contains. As it is, we can only say, in general terms,

that none who take any interest in the Empire of Brazil, its productions, and manners, and customs, or in the scientific views of one of the greatest naturalists of the present day, should fail to read this tasteful and instructive volume.

EDUCATION.

Catalogue of Mr. Van Norman's Boarding and Day School for the Education of Young Ladies. Organized in 1857. Rev. D. C. VAN NORMAN, LL.D., Principal.

It is now six years since we examined one of Dr. Van Norman's catalogues.* As our readers may remember we were then well pleased with the general system of female education which it embodied. The pleasure which we felt and expressed was not a little enhanced by the fact that we knew from personal observation that there was no theory in the catalogue which was not carried into practice in the School.

The catalogue now before us is that for the last scholastic term, and it affords an additional illustration of the adage, *Discemus in docendo*. In the present instance, also, we have had an opportunity of comparing theory with practice. We have seldom spent two hours more agreeably than we did at a recent visit to Dr. Van Norman's school, for which privilege we were indebted to the politeness of the Principal, in favoring us, as well as other friends of education, with an invitation to see any of the classes whenever we found it convenient, and felt disposed to do so. From our former visits, years ago, we had expected much; and yet we can assure our readers that we were surprised, nine or ten days ago, at the progress made; not that we recognized any of the students who were there during our former visits, most of whom, if not all, are now married. But the system of training, both physical and intellectual, pursued from the primary to the highest class presented a marked improvement; and we need hardly add that the results, as indicated by the superior intelligence of the students, presented a corresponding improvement. The teachers are not only thoroughly educated; the ladies, as well as the gentlemen, understand the science of teaching, showing that they have been selected by an experienced and discriminating educator, whose standard is all it ought to be.

We were present at the recitations of several classes, whose studies embraced reading, arithmetic, philosophy, Latin, &c. Our readers are aware that it is quite as much our habit to criticise as to commend, when we cannot do the latter conscientiously, and we have always regarded it as only spurious gallantry to praise as superior intelligence in female students what we should regard as mere smattering in male students. This

* *Vide No. for March, 1862. Art. "Female Education; Good, Bad, and Indifferent."*

would be no compliment to the sex; it would certainly do them no good, if it would not do them harm. But we really had no criticisms to make during our recent visit. When about to leave, perfectly satisfied with the system of the school and its results, the Principal remarked to us, with his usual modesty and politeness, that if it were agreeable and convenient to us to stay a little longer, he would be pleased to have us present at some of his classes. We readily availed ourselves of the Doctor's invitation, and we exaggerate nothing, nor do we indulge in the mere language of compliment, when we say that we found this a veritable privilege.

First the young ladies read passages in Pope's Essay on Man, and, in reply to questions from their instructor, very intelligently and happily explained some of the allusions of the poet. This pleasant exercise was followed by a parsing lesson, which was, undoubtedly, the best specimen of that very important branch of instruction which we had witnessed for some years. Finally the Doctor conducted us to his Latin class. The lesson happened to be the opening of the second book of the *Æneid*; the young ladies translated about a hundred lines with such ease and accuracy that we confess we were not a little surprised. We could not help remarking, at the close of this highly interesting and creditable exercise, that, although we have sometimes the gratification to be present at a college class in which the Latin is spoken fluently, we have seen no class of young men in any of our best institutions translate Virgil more correctly or more elegantly than the young ladies we had just heard.

In short, nothing that could be called hesitancy occurred from the beginning to the end of the lesson, except in one instance; this was caused, not by inability to translate, but that delicacy which is inherent in woman, and whose place cannot be supplied by any amount of learning. All went admirably until it came to the well-known line which concludes the poet's beautiful description of the famous wooden horse destined to destroy Troy; we quote with this the preceding hemistich, so that the sense may be complete:

— penitusque cavernas
Ingentes utrumque armato milite complent.

As "uterum" can only be properly rendered by "belly," the young lady preferred to be considered ignorant of the sense of the passage rather than pronounce in the presence of men a word which it must be admitted is seldom heard at the present day from ladies' lips; nor did any of her fellow-students offer to correct her, obviously for the same reason. Dr. Van Norman removed the little stumbling-block in a very judicious and graceful manner; and the lesson proceeded as if nothing had happened.

There was no smile or titter, such as young ladies of less culture could hardly have refrained from under similar circumstances. The incident was a very trifling one we are well aware; at the same time it struck us very

forceibly as illustrating the power of true education in imparting strength and firmness to the mind. Respectfully and earnestly attentive as we were to every word translated, we could not help recalling the words of the good and amiable Fenelon. "It is ignorance," he says, "*that renders women frivolous*. When they have arrived at a certain age *without habits of application, they cannot acquire a taste* for it; whatever demands continued application fatigues them."*

We should not do justice to our own feelings did we close even so brief a record of our recent visit, without giving some expression, however inadequate, to the pleasure we derived on the same occasion, from a glance at the studio of Mrs. Van Norman. Not wishing to disturb the students, we took no notes of the several fine pieces, chiefly landscapes, that hung around the wall, giving the studio an appearance suggestive of what poets love to describe as a miniature paradise. Years ago some of Mrs. Van Norman's pieces attracted our attention at one of the annual exhibitions of the Academy of Design; and we spoke of them in this journal as among the best of their kind on the catalogue of the Academy. To this we need hardly add that her paintings, which are intermingled with those of some of her best students, form one of the most attractive features of the Van Norman School.

Catalogue of the Officers and Students of St. Vincent's College, Westmoreland County, Pa., for the Academic year 1866-67.

WHEN we alluded, incidentally, in one of our recent articles on Commencements of Colleges, to what education and civilization, as well as religion, owe the Benedictines, we were not aware that that illustrious order of educators had yet established any of their institutions in this country. A friend informed us soon after, that they have a college in Pennsylvania which compares favourably with the best in the country, and his statement is corroborated by the catalogue now before us. From this we learn that St. Vincent's College was founded in the year 1846, by the Right Rev. Boniface Himmer, O. S. B., of St. Vincent's Abbey; that it was this dignitary who first introduced the order into the United States, and that the institution is still under his immediate supervision. St. Vincent's maintains three distinct courses of study—the ecclesiastical, the classical, and the commercial. The Faculty consists of twelve clergymen, including the President, and nearly an equal number of lay brothers. The majority of the former are graduates of some of the most celebrated universities of continental Europe; to which it need hardly be added that they are eminently qualified for their respective positions. The institution possesses the advantages of an extensive library, and a complete chemical and philosophical apparatus. It is beautifully situated in the

* Essai sur l'Education des Jeunes Filles.

western part of Pennsylvania, eight miles from Greenburgh, and easily accessible by the Central Railroad.

It is in secluded but elevated, healthy situations of this kind that the Benedictines have educated most of their celebrated pupils; for we may remind our readers that even in the time of Pope John XXII., who died in 1334, they had already educated 24 popes, 200 cardinals, 7,000 archbishops, 15,000 bishops, and 15,000 abbots of renown. Nor were their teachings limited to ecclesiastics. The great and illustrious in every rank and department have been numbered among their alumni, including 20 emperors and 10 empresses, 47 kings and more than 50 queens, 20 imperial princes and 48 royal princes, &c., &c. This may well seem incredible; but the number of authors and learned men belonging to the order would, if stated, seem still more incredible; yet no facts are more fully attested by Protestant and Catholic writers. Every intelligent student of French history is aware that Alcuin, the founder of the University of Paris, which formed the basis of all the great literary and scientific institutions of France, was a Benedictine; and that Protestant England is as much indebted to them as Catholic France, is sufficiently shown by the fact that the famous Anselm, Archbishop of Canterbury, and the Venerable Bede, were Benedictines.

When we remember monks like these, and the incalculable good they did, not alone for their contemporaries but for modern civilization in its whole extent, we should be ashamed of ourselves if we allowed our Protestantism—which, we must confess, is a doubtful authority at best—to prevent us from awarding them the honour that is justly due to them as benefactors of mankind.

Catalogue of the Officers and Students of the Seminary of our Lady of Angels, Suspension Bridge, N. Y., for the Scholastic year 1866-67.

We do not take up this Catalogue with the less good will or respect because it is that of an institution devoted chiefly to the education of candidates for the priesthood of the Catholic church, but the contrary. If some of our readers be displeased with us for this we are sorry for it; but we shall never be prevented from doing what we think just and right by the fear of sustaining loss, or incurring censure. We are now pretty well used to such orders as "Stop your review from me—it is Popish," &c. We rather pity than dislike those who write to us in this strain. Actuated by this feeling we sometimes try to reason with them, and we are glad to say—quite as much for their sakes as our own—that we occasionally succeed; the grumbler at our "Popishness" frankly admitting that he was wrong, that he wrote without reflection, &c.

Not only does it afford us pleasure to see Catholic seminaries flourish, but we should be glad to see them sustained by the State. We hold

that this should be the feeling of every citizen who takes any interest in the welfare of his country, or in the advancement of civilization, since it is undeniable that no clergy exercise a more powerful influence over their people than the Catholic priesthood; and this being admitted, it must also be conceded that, in proportion as the education of the priests is of a high order, is their influence beneficial both to the State and to society. Accordingly, the wisest and most distinguished Protestant statesmen have been in favour of granting liberal subsidies to Catholic colleges. We need only mention, as instances, Pitt, Fox, Sir Robert Peel, and Lord Palmerston. Among the most eloquent appeals of these enlightened statesmen are their speeches in favour of endowing Maynooth College; and it is but seldom they have failed, even in the most bigoted times, to get a majority in both Houses of Parliament, at least for some aid. Prussia, the most enlightened of the Protestant States of Germany, has pursued a similar course; and should a Republic be less tolerant or less liberal than a monarchy?

We do not know, however, that the institution which issues this Catalogue desires any aid from the State; we are not aware that it makes any further proposition to the public than to offer its services in a legitimate way to those who appreciate them. Judging from all the information we have been able to glean from different sources, and from the pamphlet before us, we have no reason to doubt that it is destined to prove eminently successful in its good and noble object. Although only of recent origin, the Seminary has already suffered severe trials. It was founded in 1857 by the Right Reverend Dr. Lynch, the present Bishop of Toronto; but just as all the difficulties more or less incident to a youthful institution seemed to have been overcome, in 1864 the buildings of the Seminary took fire and were completely destroyed. The good fathers were grieved at this disaster, but they lost no time in repairing it; and as is usually the case under such circumstances, the new buildings are much superior to the old. We learn from the Catalogue that "the whole edifice is of a superior quality of gray limestone, and is built in a most solid and substantial manner. At present it measures one hundred and fifty feet in length and one hundred feet in depth, and is five stories high, besides the basement. The experience of years has taught us what is necessary for a suitable seminary building; hence, when erecting this, we endeavoured to construct it so as to serve all seminary purposes. Thus the different apartments, such as study hall, dormitories, refectory, and class halls, are all arranged with the view of securing the health, comfort, and progress of the students."

Ten clergymen, including the Rev. President, constitute the faculty. All have been chosen by the Bishop of the diocese for their peculiar qualifications for the different chairs which they respectively fill; and it seems from the number of students, from nearly all parts of the country, who attended during the last session, that the institution is appreciated

accordingly. We intend to give our impressions of the system of instruction pursued at the Seminary next September, in our annual article on commencements of colleges; in the mean time we have no hesitation in ranking it among the best institutions of its class in this country.

Elements of Physical Geography, together with a *Treatise on the Physical Phenomena of the United States*; illustrated by one hundred and fifty Engravings and thirteen copper-plate Maps, executed in the first style of the art. By JOHN BROCKLESLEY, A.M., Professor of Mathematics in Trinity College, Hartford, Conn.; and author of *Elements of Meteorology*, *Elements of Astronomy*, &c. Large quarto, pp. 164. Philadelphia: E. H. Butler & Co. 1868.

DURING the last eight years it has been our privilege to examine many excellent school and college text-books bearing the imprint of E. H. Butler & Co.; but we can truly affirm that no work on Geography has reached us from any source which is worthy of comparison with this. The author is certainly entitled to the distinction of having made an important step in advance of all his competitors in this country. He presents the student a large amount of interesting and valuable information which is not to be found in any other American Geography that we have seen; and what is more he presents it in a form well digested and admirably arranged. In the first place, the letter-press traces physical geography to its combinations with astronomy and geology in a manner well calculated to render each of those sciences attractive to the young student; and the pictorial illustrations, most of which will be new to those confined to the geographies in common use in the United States, are of such a character—well engraved and striking—that they cannot fail to impress on the memory the principal facts and phenomena to which they relate.

Yet in our estimation the maps form by far the most important feature of the work. These, be it remembered, do not merely represent the relative bearings of countries, their boundaries, rivers, mountains, &c., &c. This will be sufficiently understood from the titles of two or three, namely: Map of the World, showing the distribution of volcanoes and the regions subject to earthquakes; Hydraulic Map of the World, showing the oceans, seas, lakes, and river systems; Map of Winds and Hurricanes, showing their distribution over the globe and their influence on the routes of navigation; Meteorological Map of the World, showing by isothermal lines the mean annual temperature of the air of the earth's surface; Zoological Map of the World, showing the distribution over the globe of the principal birds and reptiles; Ethnographical Map of the World, showing the distribution of the principal races of men, &c., &c.

It is not alone students whom these maps will interest and instruct; there are few adults so learned but that they will derive profit from examining them; and the same remark will apply with more or less force to every feature of the work.

1. *An Improved System of Geography, designed for Schools, Academies, and Seminaries.* By FRANCIS McNALLY. Quarto, pp. 110. New York: A. S. Barnes & Co. 1868.
2. *The Republic of Liberia; its Geography, Climate, Soil, and Productions. With a History of its Early Settlement.* Compiled by G. S. STOCKWELL. 16mo, pp. 299. New York: A. S. Barnes & Co. 1868.

WE think these two works ought to go together; they are worthy of each other, and we feel constrained to add that they are also worthy of their publishers. Yet, we are sorry to say, we cannot recommend either, however willing we should be to oblige the Messrs. Barnes & Co. If our opinion of one publication or the other were asked, we could not possibly speak favourably of it, because we could not permit ourselves to deceive those who honour us with their confidence. For this reason we confess we have often told our friends, in reply to their enquiries, that we could not recommend the so-called "Improved System of Geography" until it is "improved" a good deal more than it is; indeed, it does not contain a map or a page, and but very few questions or answers, which do not need improvement in one way or other.

So fully convinced are we of this, that when we saw it represented in an advertising sheet, issued by the publishers, entitled "The Educational Bulletin," that the Christian Brothers "have adopted Monteith and McNally's Geographies, by edict of the Provincial of the order,"^{*} we thought there must have been some mistake. Surely, thought we, the Provincial of the Christian Brothers has issued no "edict" in favour of any such "Geographies;" if he has done anything that could bear such a construction, even by implication, it is because he had no time to examine them, but took the word of some interested party, whom he supposed would not deceive him. We felt so certain of this that we took the liberty of asking the gentleman the next time we saw him, and he authorized us to inform our readers that there was no foundation for the statement alluded to; that in a few instances the works in question may have been introduced into the schools under his jurisdiction, but that those in general use were Mitchell's Geographies; and that it was his intention that the latter should be used exclusively in all the institutions under his charge—at least that the Messrs. Barnes would have to seek an edict elsewhere for their "Improved System."

Indeed, had the gentleman done otherwise, we should have regarded his taste as much degenerated. We readily admit that there is no better judge of a geography or atlas; but precisely because this is the case he wants none of the "Monteith and McNally Series." In order to understand that he is right in this, it is only necessary for any intelligent educator to examine the Geography now before us. Being a "revised

^{*} See No. for October, 1867.

edition " of "an Improved System," it ought to serve as a good specimen of the whole series, especially as it is, we believe, the most "advanced" number (5) of it. A glance at the maps and "cuts" is sufficient.

We may well be thankful for the work on Liberia, containing as it does so many literary and oratorical gems, which show how grossly the Negro intellect has been misrepresented by interested and malicious parties! Those who were slaves in Southern plantations only a few years ago are now capable of instructing us with pen and tongue, not merely in newspapers or other ephemeral publications, but in our school books. In making these remarks we may seem to burlesque the performance entitled "The Republic of Liberia," but such is not the case; we have no disposition to treat it otherwise than fairly.

In order to satisfy the skeptical that we do not exaggerate the high claims set up for the Negroes in this volume, it is sufficient to quote a remark or two from the compiler's preface. Lest we might suspect that the "gems" alluded to are spurious, we are gravely informed that the Liberians have a college at which inaugural addresses, &c., are delivered, which "would do credit to any in this land for rich and scholarly thought," and afford "conclusive evidence to the world that there are men of African blood who are competent to fill the *highest positions* where *cultivated intellect and brilliant talents* are required."

What a loss we have sustained by the withdrawal of such brilliant intellects from amongst us! It is true that we may still avail ourselves of their superior wisdom if we will only study works like that now before us. We are told in the same preface that the new negro "nation" "has a form of government *more in harmony with the teachings of divine revelation*, in its structure and application to the well being of the people, *than that of any human government*. In this respect it may be said to present a *model* even in its youth to the old nations of Europe and Asia *worthy of imitation*."

In proof of all this we are presented with the "Inaugural Address of President Benson," "The Original Constitution of the Republic of Liberia," &c. Of course these are model performances. What a pity it is that we have not a Negro President in Washington! Had Andrew Johnson only taken some lessons from his Excellency, Stephen Allen Benson, he would never have been guilty of those "high crimes and misdemeanors," and Congress could have been otherwise engaged just now than impeaching him. Be this as it may, we would much rather recommend the works before us to the citizens of Liberia than to those of the United States. They are certainly better calculated for negroes than for white people.

- A *New Manual of Astronomy, Descriptive and Mathematical*, comprising the Latest Discoveries and Theoretic Views, with Directions for the Use of the Globes, and for Studying the Constellations. By HENRY KIDDLE, A.M., Assistant Superintendent of Schools in New York. 12mo, pp. 284. New York: Ivison, Phinney, Blakeman & Co. 1868.

ALTHOUGH the title of this volume would lead the intelligent reader to expect much, we think it will disappoint none, but rather surprise even the most sanguine. We have certainly found much more that will be new to most students than we had expected; and much more that will be interesting to the general reader. Nor is this opinion the result of a casual glance; for we have carefully examined the work in all its features and characteristics, partly because we admire the science of which it treats, and wish to encourage its study, and partly because the author has succeeded in investing even those facts and phenomena that are more or less familiar to all, with an air of novelty.

The multifarious information in the letter-press is admirably arranged; there is no crudeness or vagueness; nor are any views, theories, or hypotheses presented in a sensational manner. In short, a philosophic thoughtfulness and calmness pervade the work from beginning to end; and in no elementary treatise published in this country have we found such excellent pictorial illustrations as those of Mr. Kiddle. This is particularly true of those in the chapters on Comets, Meteors, and Nebulæ; indeed, these fine engravings are creditable to all who have had a hand in them.

Another excellent feature of the book is, that while its exhibition of principles is abundantly lucid and satisfactory, it occupies comparatively little space with what is familiar to most intelligent persons, the author preferring to introduce as much as possible of what is new—of what at least has hitherto been confined to more elaborate treatises. To this we need not add any formal recommendation of the “*New Manual of Astronomy*,” it is one of those works whose intrinsic merits are a sufficient passport to the confidence of intelligent instructors.

1. *Lives of the Queens of England. From the Norman Conquest.* By AGNES STRICKLAND. Author of “*Lives of the Queens of Scotland.*” Abridged by the author. Reviewed and edited by CAROLINE G. PARKER. 12mo, pp. 675. New York: Harper & Brothers.
2. *A Smaller History of England, from the Earliest Times to the year 1862.* Edited by WILLIAM SMITH, LL. D. Illustrated by Engravings on Wood. 16mo, pp. 357. New York: Harper & Brothers. 1868.

WE have, on former occasions, recommended the “*Student's Histories*,” issued by the Harpers, as an excellent class of school books, and these now before us possess the same general characteristics which we indicated in previous notices of the series. Miss Strickland's “*Queens*

of England" is quite equal to the best in interest and attractiveness, in cosmopolitan liberality and freedom from prejudice; either religious or political, it is superior to all. The authoress is certainly the best authority on the queens; and she introduces characteristic anecdotes into her biographies which are not to be found in other works that are accessible to the general reader.

As the title implies, Professor Smith's abridgement is designed for a younger class of pupils than those for whom the "Student's Histories" are intended; but it omits no important events or incidents in the History of England. What renders it better adapted for children than the larger histories is the extreme simplicity of its style. The matter of it is admirably arranged: it has a full table of contents and a copious index.

MISCELLANEOUS.

Norwood. By HENRY WARD BEECHER. 12mo, pp. 549. New York: Charles Scribner & Co. 1868.

It is not necessary that we should review this volume; its characteristics are pretty well known to those who care for such reading. The work is not without interest; it contains some descriptions of natural scenery, and portraiture of character, which show graphic power of a high order, and no slight knowledge of the human heart. But this is the most we can conscientiously say in favour of "Norwood."

We cannot help thinking that a clergyman might find something to do more worthy of his profession as a minister of the gospel than novel writing for the "Ledger." We fear Mr. Beecher does not praise God half so fervently as he does Bonner; but the latter pays in hard cash for that sort of thing, and it is but right he should get the worth of his money from all who undertake to do such work. However, we would not depreciate the half pious, half impious Ledger novel; although by no means a finished work—being a series of fragments put together somewhat crudely without much taste or skill—rather than a complete whole; it is much better, as well as more attractive, than most novels of the present day.

The Home of the Tulip, and Other Stories. By Miss ANNA B. COOKE. 24mo, pp. 200. New York: Prot. Epis. S.S. Union. 1867.

THIS tiny volume contains several pretty stories, which, though very simple, are as instructive as they are attractive to the younger class of readers. "The Home of the Tulip" and "The Home of the Wistaria" are charming fables, the object of which is to give the young reader lessons in botany and religion at the same time. "The Flower Eater" and "How God helps the Farmers" also combine useful instruction with harmless amusement.

The Life of Bishop Freeman of Arkansas. By the Rev. JOHN A. NORTON, D.D., Rector of Ascension Church, Frankfort, Ky. 24mo, pp. 203. New York: Prot. Epis. S. S. Union. 1867.

THERE is nothing either striking or exciting in this little volume; it is simply the record of a life which all who knew the subject admit to have been pure and good. We need hardly say that it is not the less instructive on this account. There is no more encouraging or useful lesson to youth than that which is inculcated by the example of one, who from an humble position raises himself by his talents and the influence of exemplary conduct to a position of eminence and honour. To this we need only add that, "The Life of Bishop Freeman" is written in a simple, attractive style.

APPENDIX.

Annual Reports of Insurance Companies, Good, Bad, and Indifferent, and other Kindred Documents; New York, Boston, Philadelphia, &c., March 15, 1868.

DID our readers in general see one-tenth of the abuse which we receive from a certain class of insurers every quarter, for about three weeks after the issue of each number of our journal, we are sure that a large proportion would sympathise with us. But we would beg of them not to trouble themselves, for those things, far from disturbing our equanimity in the slightest degree, really amuse us. There are certain small animals that make a great outcry and show their teeth very threateningly when they are hurt—and none are more easily hurt—but they seldom frighten even old ladies. But we need not go beyond the species *homo* for an illustration; it is only necessary to enter the police court almost any day in order to comprehend the whole affair. There it would be seen that it is the worst malefactors who have most fault to find with the judge; it is true, indeed, that even in this atmosphere the abuse is done chiefly by the outcasts of the female sex. But, in either case, their bad language hurts none, makes none angry, save themselves. Innocent men and women may be brought into court and treated harshly; but they seldom abuse either their accusers, or their judges. There is a dignity about innocence and honesty which restrains them; and if they possess any intelligence they know there is another tribunal to which they can appeal against the wrong and injustice done them.

Let us assume that the judge is ignorant and malicious, or that he is bribed, and has, therefore, an interest in passing a false judgment upon us; it will be admitted that the way to prove our innocence under such cir-

cumstances is not to call him abusive names, send him anonymous, threatening and obscene letters, or put ourselves to the expense of distributing placards throughout the country to defame him. A much more rational course would be to show by some evidence, or even argument, that his judgment is false. If one is charged with stealing a sheep the main question to be decided is, did he steal the animal, or did he not? If, on some of the wool, entrails and other *exuvia* of the stolen quadruped be found in his possession, he turns about and accuses the person who has exposed and denounced him of being actuated by vindictive motives, and calls him hard names, the thing is natural enough, but does not answer the purpose. Nor will he serve his case much better by collecting a mob of his confederates to aid him in the work of abuse, since it is too well known that, however fiercely and unscrupulously that class of persons fight amongst themselves for the largest share of the booty, they are always ready to join hands against the common enemy—that is, against any one who attempts to expose the general operations of the fraternity.

These are a few of the reasons why we have been pleased, rather than otherwise, with the attentions showered upon us every quarter by a class of insurers well known to our readers. We have, perhaps, also derived some consolation from the fact that such, as do their duty, of the superintendents and commissioners of Insurance appointed by the Government, in different States, for the express purpose of putting the public on its guard against swindlers—are quite as much abused as we, by precisely the same parties. Superintendent Barnes of the State of New York, and Commissioner Sanford of Massachusetts, have had the honesty and courage to expose the *modus operandi* of certain “fast” companies; and accordingly no epithet, however low, is too abusive or insulting to apply to either.

Some of our best companies may, and doubtless do, find fault with them occasionally—especially with Mr. Barnes, whose numerous interrogatories have caused much additional expense—but they do not abuse him. They see, on reflection, that it is a tribute they have to pay for the protection of the public against the operations of those who are not so scrupulous as themselves; but it is precisely because it is well understood, on the other side, that the interrogatories alluded to are designed to restrain the dishonest (although the honest also have to incur considerable expense and trouble in answering them); that Mr. Barnes is as much detested by the quacks as we are ourselves. We believe there is only one charge made against us which has not also been made against the New York State Superintendent; we stand charged in at least a score of quack indictments, both in prose and doggrel, of having been born in Ireland, and had the presumption to come to this country, without the fear of God before our eyes, to make periodical attacks on innocent Insurance companies!

So far as we are aware no such count as this has been put in the in-

dictment against Mr. Barnes. Be this as it may, we plead guilty to a part of the charge—guilty not only of having been born in Ireland, but also of having spent most of our life, including our happiest days, in that island. We make this confession all the more readily because the respectable, enlightened class of Americans, with whom, almost exclusively, it has been our privilege to have relations, far from having ever made us feel that it was any reproach to have come from Erin, have always rather treated us still more kindly than they otherwise might have done. At all events, it follows that, because we are from Ireland, we must necessarily be ignorant of Insurance, and unable to distinguish a swindler from an honest man. But, if this be the difficulty, why make such a fuss, four times a year, about ourselves and our journal? There is no power in ignorance. An ignorant person may, indeed, cut one's throat or break his head; but as long as he uses no weapon but his pen, he can do little mischief; surely not sufficient to render it worth while for a dozen Insurance companies to soil their clean hands to throw dirt at him, and employ a mob of others to assist them at the same work!

It is well known that there are two or three Insurance journals in this city that live the precarious life they do by hiring themselves out by the month or six months, as bullies, to the highest bidder; and it is equally well known among intelligent underwriters that whatever hire those parties get they generally do their employers more harm than good for it. At all events, far be it from us to feel any resentment towards "editors" of that class; really we rather pity them, and think how much more honest and respectable they would have been had they stuck to their former trade of "drummer," cobbler, tailor, or whatever it was. If they get ten dollars a piece from a dozen quacks for abusing us, we are entirely satisfied, since it serves them and does us no harm. As for their "criticisms" on us, even the "quacks" must be amused at the foolishness of them. Thus, for example, one proves how stupid we are by showing that we choose such worn out subjects as Greek Comedy, Mediæval German Literature, &c., which, he tells us, "were written up and out years ago." This will remind our readers of a certain scene in a well known drama, in which Jack Cade addresses Lord Say as follows: "It will be proved to thy face that thou hast such men about thee that usually talk of a noun and a verb, and such abominable words as no Christian ear can endure to hear."* Jack further informs his lordship in the same passage: "I am the besom that must sweep the court clean of such filth as thou art."

Although it is a very grave offence on our part to meddle with subjects that others had "written up and out" before we were born, yet we might have been forgiven had we confined ourselves to those ancient topics, and

* Henry VI., Part II., Act iv., Scene 7.

said nothing about such modern topics as the operations of our quack insurers. But it would be unjust to rank all Insurance journals among the hired bullies; there is an Insurance journal in Boston, one in Philadelphia ("Ex. & Rev."), and another in Baltimore, which are respectably conducted. So far as we are aware these criticise fairly, but do not abuse all who have the temerity to find fault with the quacks. But precisely because they are above this baseness—because they have some regard for the proprieties of life, their patrons are far less numerous than those of the opposite class of journals. Sometimes the quacks patronize them also; but the patronage is withdrawn as soon as they fail to do their dirty work; or, if it is not entirely withdrawn, it is diminished to the lowest figure.

But have any of our readers remarked that when about a dozen New York companies break down, or "reduce their capital stock," which is nearly the same thing, so that the services of the geniuses belonging to them are no longer required, all of a sudden an Insurance journal springs up, fungus like. The brains, such as they are, gathered up from the *debris*, are thus turned into a very natural channel, for who can defend spurious assets more "conscientiously" than those who have dealt in such goods themselves as long as they found any to deal with them?

There is another class of Insurance companies which we do not rank among the quacks, although it must be admitted that they quack a good deal too. They are constantly boasting about their "assets," and as constantly running down the assets of their neighbours. They are distinguished by a foolish, vulgar pompousness, which, in spite of their great airs, renders them not a little ridiculous. Because they are styled "the executive," "executive officers," &c., by their Jenkinsons, and are declared by the same authorities to possess unbounded knowledge, and transcendent "executive ability," they sometimes fancy themselves the Czar, the Shah, or the Grand Turk; and it is but natural that while in this mood they regard their betters as their vassals. Their stomach for praise is unbounded, and if it is not gratified by those whom they condescend to patronize, we be to them. Sometimes we have ventured to remind them, in the politest manner we could, of the mule in ancient story that boasted largely of his noble ancestry, until his father, the donkey, lifted up his voice on the other side of the hedge and began to bray. But even those who satisfy their cravings to the fullest extent, dressing them up somewhat after the fashion of the clown adorned with a pig's tail and putty nose, have only done half their work until they make an onslaught on the "base" company over across the way, or in some other city, as the case may be.

It is no wonder, then, that even the Insurance Jenkins asks, "Have we a gentleman among us?" and informs us, on "official" authority, that so disgraceful has Insurance become, "it is a good business to retire from." Now, we have never made so general a charge as this; on the

contrary, we have always readily admitted that there are gentlemen among our underwriters. We will not charge Jenkins with mendacity, however; that sort of argument we leave to himself, and those of similar tastes. But may not the discrepancy be accounted for? Is it not sufficiently easy to understand that no gentleman, whether insurer or insured, would associate with a hired bully? The class of insurers, therefore, who employ him, may well ask, "Have we a gentleman among us?" and it may be truly replied, not one! Nay, if Jenkins had asked, "Have we a single man of real integrity amongst us; or one who would not rather swindle the widow and the orphan than give them their rights?" we fear we should have had to answer him in the negative, as in the other case.

We have been much pained to learn that the remarks which we took the liberty of making in our last on the Chamber of Life Insurance, were not satisfactory to "the honorable members" who were present. It seems that in the first place we should have said that more than seventeen companies were nominally represented; although it would have been a false statement. Should we exaggerate now, or tell the simple fact, that only *ten* companies, good, bad, and indifferent, were represented at the last meeting (Feb. 19)? The President of the New England Mutual still persists in staying away; it is said that the chair must be fumigated before he consents to occupy it. It required a very small chamber, indeed, to contain the present audience. Was it grief for this that caused Morgan and Eadie to keep their mouths so closely shut during the whole proceedings? Our reporter informs us that neither had ever looked so lugubrious before. What a contrast to their former fussiness and loquacity! Mr. Eadie did not even quote "our own poet—wholly our own"—to show that there ought to have been more present, and prove that the Chamber will one day be a very powerful institution. It is a pity that the chairman *pro tem.* did not lift up his voice as usual, even if he did do a little violence to grammar and other things; but he obstinately refused to afford us a hearty laugh.

The orator of the occasion was a Mr. Lewis of Washington; but if there is anything in his speech more than words it is above our comprehension. Mr. Jones, of the National Life, made some sensible, pointed remarks, as he always does when he speaks on Insurance, for he perfectly understands the subject. Mr. Elizur Wright made some good suggestions, also; but we cannot say as much of any of the rest. The speech of Mr. Noyes may be regarded as a very good specimen of the politeness of a certain class of underwriters. Speaking of the New York State Superintendent, he designates his questions as "foolish," &c. Referring to his own course as Commissioner of Connecticut, he says: "I was as easy with the companies as possible," &c. Further on the same gentleman informs his brethren that "he would not ask one-half or one-tenth the questions Mr. Barnes asks. If I could not get the true condition of a company from the questions *I would ask, I would go without.*"

This, perhaps, will be the better understood from the fact that Mr. Noyes is the President of a small company himself, especially in view of the adage that those who live in glass houses should be careful not to throw stones. Mr. Noyes has also great contempt for lawyers. On its being proposed to employ counsel in a certain case, he said "it was best to keep as clear of the lawyers as possible, for *they knew nothing of this business*, and we had to do their work if it was done." We quote this simply to show that Insurance is far too profound a science for any but underwriters of a certain class to understand; the insurer, like the poet, must be born with the necessary genius; no amount of study will do the work. Probably this is the reason why so many fail, and cheat the widow and the orphan!

We think our readers will bear us testimony that it is not our habit to boast of ourselves. There is one thing, however, of which we will boast, namely, that we have never been treated otherwise than courteously and well by gentlemen, whether underwriters or not. Nor will we deny that we prefer those who treat us well to those who treat us ill; in short, we prefer our friends to our foes. Yet we are not wholly actuated by selfish motives. We do not find fault with men who, we believe, are in general honest, no matter what feelings they may entertain towards ourselves. Thus, for example, there are several insurance companies in Massachusetts from which, so far as we are aware, we have never derived any benefit; but we have never found fault with one of them because we think they conduct their business in a legitimate manner. Indeed our relations with the people of Massachusetts, especially with those of Boston, for the last eight years have been such that we could not think ill of any of them except much stronger evidence were presented against them than we have ever seen. There is not an individual in the Bay State who has wronged us out of a dollar; whereas there are hundreds belonging to different professions who have done us good service.

Another reason why we entertain a good opinion of the Massachusetts Insurance companies is, that it has been our privilege to know one of them for years; and that we have never known better anywhere. Doubtless those who judge the motives of others by their own, will tell us that we speak better of the institution alluded to than we do of others, because it gives us more patronage; but such is not the fact. We have never derived one penny from it directly or indirectly more than our ordinary advertising rates; nor have we ever asked more. In short, it pays us less than several private business firms whose names we have never mentioned in our journal. The truth is, that we have always admired the ability and integrity with which the principal officers of the New England Mutual Life Insurance Company perform their multifarious duties. Their Annual Report is the first issued of all we see, and we take it up before others all the more willingly from the fact that it is always well written, and cosmopolitan in its views. We are sorry we cannot do more on the present occasion than to

quote the following results from its statement of business for the year ending November 30, 1867; but they speak for themselves, and are eloquent and convincing:

" 3,839 Policies issued, amount insured.....	\$12,376,212 00
896 Policies terminated, amount.....	2,685,618 00
2,943 Policies increase.....	\$9,690,594 00

"The number of Policies on the books of the Company, including those on file unsettled and in hands of agents, is 16,526; amount insured, \$51,367,184.05.

"There are also claims for insurance upon four hundred and fifty Policies, upon which the Company is liable for \$1,000,000, under the requirements of the non-forfeiture law of April 10, 1861.

"One hundred and thirty policies were terminated by death of the insured during the year, amounting to \$429,100."

These interesting evidences of well-merited success remind us that there are two features in Life Insurance, as conducted in Massachusetts, which should receive more attention than they have from that portion of the public which is seeking to obtain the most insurance for their money. In the first place, then, is the *non-forfeiture* law of April 10, 1861. It is not claimed, we understand, by any Massachusetts Life company that the companies of other States do not give, in most instances, the benefits of non-forfeiture policies; but it is claimed that no company out of Massachusetts is *compelled* to waive profits on forfeited policies as Massachusetts companies are by the law above mentioned. It is well understood that in mutual insurance there should be no such thing as profit. In a stock company there is profit. In a mutual life company the funds are held by trustees, who receive the premiums, put them at interest, pay claims and expenses, and return whatever surplus has arisen to the parties who compose the company. The overpayments are returned, but no profit (except on forfeited policies) is supposed to exist. Many companies, and it is unnecessary to particularize, have made large sums by forfeiture. When Mr. Elizur Wright was Insurance Commissioner of Massachusetts, his attention was drawn to the fact, and we understand that the law of April 10, 1861, is due to his efforts in behalf of those parties who might subsequently pay in more than the cost of insurance, and, perhaps, run the risk of losing the overpayment. This law provides that whenever a party has paid in more money than has been loaned by the company, four-fifths of his overpayment shall be considered as a single premium for a term insurance, according to the Combined Experience Table of Mortality. Thus perfect equality is maintained among all the members. If such a law could be enacted in every State of the Union where life insurance companies exist, no one's interest would be prejudiced.

Another feature—and it appears to us that in this respect Massachusetts

legislation is far beyond that of any other State—is that, by statute of February 16, 1866, it is provided that distributions of surplus shall be made in proportion to the contributions of members; that is to say, each member has his share of the gains by interest, mortality, and economy of management. The old plan of distributing surplus by giving a large return to the new members, at the expense of the old, is now done away with.

But the point to which we call attention is the fact that Massachusetts legislation provides how the business shall be conducted, and protects the interests of the insured throughout the State. Is it too much to expect that by and by our own State, which has already done so much, will not come forward and protect every policy-holder in his rights?

But we must not return to New York yet a while. Hartford is too important an Insurance place to be passed over; although we cannot give its citizens, as a whole, the same credit we do to those of Boston. It is generally admitted that there is no knowledge less liable to the alloy of error than that gained by observation and experience; and if we have not lost one dollar, as we have said, by the people of Boston, we have lost hundreds by those of Hartford, and been abused by them as if we had only just escaped from the State's prison, into the bargain. We will not say that we have been cheated or swindled by the latter, because these may not be the proper technical terms to apply in the cases alluded to—they may not accord with the views of those gentlemen (the lawyers) who, according to Mr. Noyes, are, like ourselves, so deplorably ignorant of Insurance. But were we to speak according to Paley, Webster, Blackstone, and certain other authorities, those are the very terms we should have to use. And it may be very illogical on our part, but we cannot help thinking that those who would deceive us would deceive others, and that consequently it is our duty to put others on their guard. Let us hasten, however, to say in justice to Hartford—that very beautiful, enterprising, and intelligent little city—that it is only against her insurers we have any complaint to make, and only against a few of these. We should, therefore, perhaps have said nothing on the subject, but we greatly dislike boasters who, in their greediness for gain, do all they can to run down their neighbors.

Probably we ought not to be surprised at the conduct of Mr. Batterson, who, instead of fulfilling his contract, gave us the lowest abuse in his quack organs because we would not fill our pages with puffs of his two companies. We had had this experience before we were favoured with the patronage of Dr. Guy R. Phelps, President of the Connecticut Mutual Life, who, before we had ever seen him or visited himself or his office, sent us his advertisement. We saw that, like his friend Batterson, he laid considerable stress on "the notice which I expect you will give;" and, like the same gentleman, he was "very much disappointed." Our

journal had already fallen in his estimation; it was evident we did not understand the science of Insurance, since we did not place the Connecticut Mutual far above all other institutions. In short, we did it "injustice" because we recognized some good qualities in other companies; but the greatest offence of all was to intimate that there are other good Life companies in New England, even in Hartford. We thought the *Ætna* and the *Phoenix*, as well as the *New England*, at least as good as the *Connecticut Mutual*, and we ventured to hint as much.

The Doctor was magnanimous, however; after his wrath cooled down somewhat he would give us another chance, and pay his advertising bill for half the year contracted for. Then, when preparing to go to press with our next number, we received quite a lengthy document, a sort of biography of the *Connecticut Mutual*—in which its operations are set forth as somewhat miraculous, far above those of any who pretend to rival it. In the same modest communication we received some very handsome compliments, notwithstanding our former blunder, such as "your excellent journal," "conducted with ability," &c. Finally, in a sort of postscript, our attention is called to "a circular which is now (then) being industriously circulated by the agents of the *Mutual Life*, showing to *what base practices that Company*," &c.

A copy of this circular was enclosed to us in order that we might know how to resent the whole thing in a proper spirit. We looked over the document, and found that it characterized the *Connecticut Mutual* rather logically as "wooden nutmegs." Of course we were very much annoyed at this, and spoke of the nutmegs in our next number as a libel on Dr. Phelps and his worthy colleagues. But it seems we should have done much more than this. Soon after we sent for the balance of what was due to us for the advertisement of the *Connecticut Mutual*, but, instead of paying, the Doctor writes: "We are very much disappointed in regard to your journal," &c., &c. It is no longer "an excellent periodical," but the reverse!

Now the question is whether we could think that a party who would pursue a course of this kind to a poor journalist, would be likely to deal very liberally with his policy-holders.* And if we have ever asked one penny from Dr. Phelps but our regular printed rates for ordinary advertisements, let him say so. The truth is, that private business firms, who have nothing to do with insurance, and whose names are never mentioned

* But it would seem that there must have been some doubt on that subject more than a year ago; for, in turning to the *Connecticut Mutual* advertisement in our journal, we find that it consists chiefly of a sort of "recommendation" from the cashiers of some fourth-rate banks, nearly all of Troy. The document is very much in the style of those who write to our quack doctors, "Send a few bottles more, and six packages of the pills—the effects are miraculous." It is very well to publish such "recommendations" when "rival companies that are jealous," &c. (see advertisement in any of the numbers of our journal for 1867), render a little "whitewashing" necessary; but to do so and refuse to pay for them, because puffs are not given into the bargain, seems to us very contemptible.

in our journal, pay more, for the reason that the Doctor would insist on getting a page and a half for what others pay for a page. Yet we have really no ill-will towards Dr. Phelps, or his company. We entirely agree with those who think that the manufacture of quack medicines has a vitiating influence on the conduct of most persons who have been engaged in it; and we are told that the "Tomato Pills" of Dr. Phelps were once as famous as the "Buchu" of Dr. Helmbold, or the "Pain Killer" of Dr. Radway, although we are further informed that the tomato pills killed more than they cured. How true this may be we will not undertake to say, but certain it is that since we have heard of the Tomato Pills, we have been disposed to regard the case of the Doctor as possessing extenuating circumstances. We are charitable enough to believe that in writing to us and trying to force us to declare his company superior to all others, he fancied he was addressing some of the village editors of Connecticut in favour of his pills, or perhaps lecturing Curry, or Jones junior, about the "peculiar features" of the Connecticut Life.

As we have no disposition to represent any one as worse than he really is, even by implication, we think it proper to say that the case of Batterson is different from that of Phelps. The former paid for the year what he promised to pay; whether he would have done so had we not taken the precaution of securing his written promise to that effect before inserting his advertisement, is another question. The manner in which Batterson operated on us was this: He induced us to let him occupy the cover of our journal for the price of an ordinary inside page, that is, *half* the price of the cover, by the positive and solemn assurance that at the close of the year he would pay the full price; his argument being that he was then limited in funds, &c. On no other condition would we have surrendered to him the page which we needed and always used ourselves for our table of contents, &c.; but when the time came to pay the money Batterson was afraid of Barnes, funds were limited, &c., &c. We remonstrated, and only got abuse for our pains. Our view was and is, that this was equivalent to obtaining goods under false pretences; nay, we confess that we have ever since regarded Batterson as having swindled us. Now our readers may judge for themselves which of the twain is entitled to the palm as an insurer!

It is well known that none are more ready to raise an outcry against those in the same trade with themselves, charging them with dishonesty and fraud, than those whose own conduct is not above suspicion. Accordingly, seeing that Batterson & Co. had worked themselves up into a very excitable state of virtuous indignation against the Provident Life Insurance and Investment Company of Chicago, because the latter happened to get involved in a lawsuit with some of its stockholders, we made it our business to institute some enquiries into the matter. We

have received information on the subject from several correspondents, all of whom speak in high terms of the Company, and their statements have been confirmed by the public journals of Chicago. We have never pretended to know more on the subject than we have learned in this way. But one thing is clear from the statements we have seen, namely, that those who have sued the company have failed to substantiate any serious charge against it. The "Banking and Insurance Chronicle" concludes its report of the decision of the court as follows:

"Finally, on behalf of the Provident Life Insurance Company, we deem it nothing more than justice to say that the Company is *perfectly solvent*, and has now—even after the cancellation of the preferred stock, and after the loss of \$60,000 on its business (a sum which many *boastful companies* have not to lose, and never will have), during the past two years—over \$100,000 in assets, that are readily convertible into cash for that sum in the market, and we feel that we are doing the Company no more than justice to say that *they will meet all their obligations to the public with promptness and fairness.*"

We believe this to be true; we have no reason to doubt it: but whether we are right or wrong in our opinion, we certainly would rather take the word of either the President or Secretary of the Provident Life and Investment, for \$100 than that of Batterson for \$5.

In any case Hartford has underwriters enough to show that she deserves her prestige as an underwriting city. Since we did not believe a year or six months ago that the Connecticut Mutual was superior to all other companies, it is not likely that we could entertain that opinion now. Most assuredly we regard the Aetna Life, Phoenix Life, and Charter Oak Life as vastly more respectable, as well as more reliable. In the first place, the Aetna did a larger amount of business in 1867 than the Connecticut. According to official returns now before us, the former issued 15,251 new policies, while the latter issued only 14,161. In short, one of the Hartford companies that we should have depreciated to please its neighbours, did more business in 1867 than any other company in the United States, and it continues to make progress in the same, if not in a still greater ratio. During last year the Aetna received premiums to the amount of \$1,401,183.86, nearly five millions; so that its assets amount now to \$8,000,000, after having paid claims during the past year to the amount of \$513,881, its total income for the same year being over five millions (\$5,129,447). When the large and various dividends of the Aetna are added to these figures, it will be admitted that the Secretary may well close his annual statement as follows:

"The opposition to which we alluded in our last Report has continued unabated during the year. That the business of the Company should have been so successful (exceeding largely that of any previous year), is surprising, when we contemplate the unusual, and *often malicious efforts* made against us, which we attribute to the unsurpassed progress of the Aetna, evidenced in the following statement of its growth:

	1861.	1862.	1863.	1864.
Policies issued.....	589	700	1,722	4,337
Income.....	\$73,533 67	\$92,204 60	\$201,454 67	\$694,827 53
Assets.....	281,203 65	310,492 04	431,236 02	891,578 72

	1865.	1866.	1867.
Policies issued.....	8,809	14,932	15,251
Income.....	\$1,633,039 57	\$3,556,236 70	\$5,129,447 34
Assets.....	2,036,823 05	4,401,833 86	7,538,612 35

So much for one of the companies which we failed to regard as "inferior." Another is the Phoenix Mutual Life, than which we really know no more solid or reliable institution. We speak from the knowledge of experience, and with unfeigned sincerity, when we say that we would not have the least hesitancy in taking the word of its principal officers for thousands. They are men who talk little and boast less; but with whom it is always pleasant to deal. We take pleasure in extracting from their statement for the year ending January 1, 1868, the following figures, which, it will be seen, embrace sound and convincing arguments in themselves:

Net Assets, January 1, 1867.....	\$1,198,256 96	
Premiums received during year.....	1,058,245 15	
Interest received during year.....	120,799 13	
		\$2,377,301 24
Add Premiums in hands of Agents,	199,643 00	
Add Accrued Interest and Cash Balances	28,576 72	
		228,219 02
		\$2,605,520 26

The number of policies issued during the same year by the Phoenix was 5,811, insuring \$15,250,910. Add to these figures the amount of losses paid during the year, namely, \$530,500, and the 50 per cent. dividend, paid regularly year after year, and we think it will be admitted that far from being "inferior," the Phoenix is eminently worthy of the classic name it bears.

As we have departed from our usual custom on the present occasion in being somewhat egotistic, we think it is but justice to the polite and intelligent President of the Charter Oak Life to say, that his conduct towards us has been the reverse of that of those fellow-citizens and brethren of his of whom we have complained above. His advertisement was ordered, it seems, only for a certain time; by a mistake, it was inserted for twice that period; but, far from using any insulting language,

Mr. Walkley cheerfully and politely gave his check for the additional amount. And our experience of the gentlemen of the *Ætna Fire*, *Putnam Fire*, &c., has been equally agreeable. Neither Mr. Hendee nor Mr. Duck has ever treated us otherwise than courteously and kindly. But there are Hartford underwriters with whom we have had no dealings whatever, for whom we have the highest respect. This is true, for example, of Mr. John C. Rice, of the *Continental*. We are not aware that this gentleman has ever patronized us to the extent of one dollar; yet we would no more disoblige him than we would our esteemed friend, Mr. Enders, or Mr. Fessenden, simply because he is too much the gentleman to disoblige or offend us without our having deserved it from him. It will be seen, then, that, if we have been rather shabbily treated in Hartford by underwriters—so much so, we confess, as to have reminded us more than once of the celebrated *Jeremiah Diddler*—it is only by a very *small* minority.

In returning to New York, after our hurried excursion through Massachusetts and Connecticut, we are reminded, not of those Life companies that make most noise, but of those who do most good in proportion to the promises they make; such as the *Knickerbocker*, the *Equitable*, the *Manhattan*. In our opinion there is no company in the United States more intelligently or ably managed than the *Knickerbocker*; at the same time, there is no company that assumes less airs, or is more modest. Mr. Lyman is always cheerful and courteous; never loses his temper; never fancies that because Jenkins styles him "the executive," he is sovereign lord. That sort of thing he leaves to those who abuse each other in the morning about their assets, and sing psalms in the evening at union prayer-meetings. Yet no one makes more steady progress at home and abroad. Only three or four years ago the *Knickerbocker* was one of our struggling companies, although in its gloomiest days its struggles were manly and honourable. Now it is one of our strongest. Its assets are nearly, if not quite, three millions and a half, and its income for 1867 was over two millions. We well remember how the *United States Life*, the *North American Life*, and one or two other similar concerns, used to sneer at it; but let us compare its position to-day with that of some of its detractors—especially those who keep bullies in their pay to growl for them. Thus, the number of policies issued by the *Knickerbocker* in 1867 was 10,284, while the *North America* can pretend to have issued only 5,259, and the *United States* only 1,814. This would seem to show that it does not pay, after all, to be Vice-President or Secretary of the Insurance Chamber; but that it does pay to stay at home, mind one's business, and not make a laughing-stock of one's self.

We do not know but we may offend both parties by remarking that the course of the *Manhattan Life* seems to us very like that of the

Knickerbocker. The officers of the former, as well as those of the latter, are much more given to thinking than to talking—much more disposed to mind their own business than that of their neighbours. The Manhattan people are in no hurry to make large fortunes, yet they are steadily increasing their pile. Their assets amount now to nearly four millions and a half; their receipts, during 1867, amounted to nearly two millions (\$1,979,360.18). No stranger who judges of men's wealth by their demeanour could suppose that the officers of the Manhattan, from the President to the Actuary, had one-tenth the amount indicated at their command; but when the widow or the orphan presents her claim, then it is readily seen that there are abundant funds.

As for the Equitable Life, it is piling up the cash at a prodigious rate. It appears that its income from premiums, during 1867, amounted to \$4,000,000; the amount insured the same year assuming the colossal dimensions of \$45,000,000. We believe that only two other companies in the United States have done a larger business during the year. We need hardly add that one of these is the *Ætna* of Hartford.

The Mutual Benefit Life of New Jersey takes rank among the most intelligently and creditably managed institutions in the United States. It engages in no quarrels; makes no attempt to disparage the efforts of its rivals; but makes as near an approach as any company we know on either side of the Atlantic to the fulfilment of the adage, "Doing good by stealth, and blushing to find it fame." If the Connecticut Mutual and New York Mutual had imitated its example in this respect we should not have been annoyed ourselves, as shown above by the nutmeg and "notice" question. It really affords us pleasure to record the success of a company whose conduct is so exemplary as that of the Mutual Benefit. It appears from the official statistics now before us that it issued 6,024 policies in 1867, insuring \$23,515,110, its premiums for the same period amounting to \$4,191,143. Thus it did about as much business for the year as the New York Life, another highly respectable company, as our readers are aware. The assets of the Mutual Benefit now amount to over fourteen millions (\$14,290,088), honest counting—no wooden nutmegs included, no pills!

The National Life may be regarded as a colony of the Manhattan; but it declared its independence some three years ago, which was fully recognized by the parent institution, and has never been called into question since. It does not make a large display of figures, but modest though its assets look, they are larger in proportion to the claims upon them than those of companies which boast of being the wealthiest in the world. Accordingly, no claims are more satisfactorily settled. Thus, it paid the handsome sum of \$24,500 in 1867, together with \$9,569 in dividends to its policy-holders. We doubt very much whether the Mutual Life paid so much in proportion to the claims upon it, although we have a docu-

ment before us (one somewhat like that sent us by Dr. Phelps some time ago) which represents that the latter company pays dividends to the policy-holders according as they are distinguished or otherwise. Thus, for instance, it is alleged that the heirs of a prominent New York merchant receive fifteen times the additions that are received by the heirs of a poor woman; that a bishop's heirs receive six times the additions given to the heirs of plain Mr. Smith, &c.; the object in each case being to have the "distinguished" policy-holders aid the company in blowing its horn. How correct or incorrect this may be we cannot undertake to say; but in either case we should certainly feel as sure of our money if we had a rightful claim of ten thousand, or twice the amount, on the National Life, as we should if we had a claim for the same amount on the Mutual Life; nay, indeed, a little surer. The officers of the National are trained underwriters; they are a credit, in every respect, to the Manhattan, whose good and honourable example they emulate; and among their Board of Directors are some of our most intelligent and most successful business men. In giving a specimen we need not be more personal than to say that one of the ablest and shrewdest of the editors of our morning papers is among the official advisers of the National officers.

New companies have multiplied within the last two years; as we mentioned on a former occasion, three-fourths of these new-fledged institutions are far too suggestive of the petroleum companies which multiplied in a similar ratio some three or four years since, and whose fraudulent operations we were the first to expose. Many of them are got up by the friends of persons who have failed in several other kinds of business, for the purpose of getting rid of them, the same as other benevolent gentlemen set up widow ladies of a certain age, who are without means, as boarding-house keepers. As in the latter case all the patrons feel called upon to do is to give some aid in procuring furniture, become security for a quarter's rent, and for a month's bill with the butcher, and perhaps the grocer; so in the former they think they have done enough when they have subscribed what Mr. Barnes has to get, furnish an office, and take a certain amount of the stock. It is hardly to be wondered at then that the "assets" are sometimes found deficient when the death of some honest dupe takes place. How much they are to be trusted we can judge thus far only by the fact that some of them have swindled ourselves by false representations out of numbers of the National Review.

But there is one new company which recalls Hercules in his cradle; we need hardly mention that we mean the Continental Life. This company did not commence business until 1866; and it issued more policies last year than companies that have been in existence seventeen years. Thus, for example, the United States, which was organized in 1850, issued only 1,814 policies in 1867, whereas the Continental issued 4,188, considerably more than twice as much. It issued more than

the Guardian, the Washington, the Security, the Widows and Orphans' Benefit,* &c., all of which are considered old companies, at least old enough to be vastly better and more reliable than they are. The amount insured by the Continental during the year was nearly twelve millions, which brought an income of nearly a million (\$307,249). Add to this \$25,000 paid for claims, and a dividend of forty per cent., and it will be admitted that the Continental Life has accomplished wonderful results. There is nothing strange about them, however; they are the results of well-directed intelligence and energy. The President and Secretary combine abilities and qualifications which, when fully exercised, never fail to secure success; accordingly, we did not hesitate to predict at the outset that the new company would rapidly attain a high and honourable rank among our Insurance institutions.

It is worthy of remark that a company bearing the somewhat ambitious title of the *World Mutual*, organized the same year as the Continental, has only issued about *one-fifth* as many policies in 1867 as the latter. Henceforth may we not be excused if we sometimes think that it takes nearly five Worlds to make a Continent? So much for the difference between management and *mis*-management!

Another new company which has assumed a very good name, is the *Standard Life*. This is to be a model for all others. Those who give it their money may regard themselves as having deposited so much in a bank—not a faro bank; if they pay more than \$40 as an annual premium, they can borrow one-third of it when they are in need of that amount, to buy a pair of boots, pantaloons, or a bonnet, as the case may be! The company possesses several other “features” that are similarly tempting, including a President who is equally skilled in Life Insurance and several other kinds of business, in none of which, however, has he succeeded thus far. One would think that an institution offering so many inducements would have a large demand for its policies, but it does not claim to have issued more than *one hundred and fifteen* (115) in 1867. How is this? Some say that it has bottom enough, but no head that can think.

But there will be good companies that are yet unchristened. We hear at least of one. If it be true that Jay Cooke & Co. are about to organize a Life Insurance Company, and we see no reason to doubt it, then the public may calculate on a new institution, which, like the Continental, will take high rank even in the first year of its existence.

Most of our Fire and Marine companies have suffered severely since our last report; but we are glad to add that there are none of those whose honourable conduct we have felt it our duty to note from time to time as worthy of imitation, which will not be fully able to meet all their liabilities. The Mercantile Mutual (Marine) has sustained heavy

* We think that if “Benefit” were left out in this case the title would be much more appropriate.

losses; but true to its prestige it has made no effort to evade them. It has not sought, like some of its neighbours, to make mere bubbles available as a means of cheating its policy-holders, but confronted its difficulties in a manly, straightforward manner. All honest men will be glad to learn that a company of this character is in no danger; for the Mercantile Mutual has still an ample fund, not only to meet all just claims, but to afford the same sure protection in the future for which it has been distinguished in the past.

The Security Insurance Company has fully realized the predictions which we ventured to make, while the Sun, Metropolitan, Neptune, &c., &c., were struggling—some of them most ingloriously—for a sickly existence. We had always regarded the Security as worthy of its name; but our confidence in it was much strengthened by the accession of its present chief officers. The President and Secretary are not only experienced underwriters; it is well known that they are gentlemen of superior intelligence. This is particularly true of Mr. Ballard, who possesses more literary ability and more knowledge of insurance than the whole mob of scribblers who do both the puffing and fighting of the quack insurance organs. We take sincere pleasure, therefore, in recording the fact that the Security is \$150,000 stronger at the present moment than it ever was before. Its net cash premiums for 1867 exceeded those of the former year to the extent of more than a quarter of a million (\$353,842). It paid more than a million of losses (\$1,073,146), its income for the same year amounting to \$1,759,046.

Another Fire Company that minds its own business is the Washington, and accordingly it has issued its thirty-third dividend, and at the same time increased its surplus fund, so that with the capital it is now pretty nearly a million (\$736,200.00.) On the 7th of February last it declared three dividends; one of six per cent., payable in cash, an interest dividend of the same rate, and a scrip dividend of 33 $\frac{1}{3}$ per cent. These facts are sufficiently significant; and they are the results of intelligent, upright attention to business. This will be the better understood if it be borne in mind that there are some two or three officers of Fire and Marine companies who fancy they make great men of themselves by getting elected chairman by different other bodies. Foolishly priding themselves on this fancied importance they become so arrogant and overbearing that they have no patience with any one who will not pander to their vanity.

This was the chief cause of the downfall of the *Moon Mutual*, as our readers may remember; some of its officers took much more pains with other people's affairs than with their own; they would, forsooth, be politicians, though only on a very small scale, as well as underwriters; and hence, there was a sad bursting of bubbles at last. There is a small company in Broadway which is pursuing the same course, although one fire of respectable dimensions would blot it out of existence. Its

President is constantly running to "preside" at some "board" or other, like a cackling hen that fancies she has an egg to lay. The directors would do well to give this gentleman a lesson; they might hint to him, for example, that pigmies look very ridiculous when they try to ape giants. In compliment to esteemed friends of ours, for whom the individual alluded to does some work, which we suppose is useful in its way, we will mention no names; although none will deny that snobbish underwriters, and small politicians, are as legitimate subjects of criticism as any other species of that genus who make the angels weep with the silly airs they put on.

It is certainly not for any lack of respect, or confidence, that we omit to speak of the Hope Fire until the close; but its prepossessing name puts us into an agreeable frame of mind, and prompts us to *Hope* that there may be an improvement in Insurance morality before we make our next report. Be this as it may, were all fire underwriters to perform their duties, and fulfil their engagements so faithfully as those of this modest institution, none would have reason to complain. It makes no display of figures; its capital is but \$150,000—its surplus fund was \$53,392, at the first of the present month (March); yet we have as much confidence in its policy as in that of the old *Etna* of Hartford, which is one of the strongest and most reliable companies in the world.

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For Interest and Rents.....	242,268 01
For Interest and Rents accrued.....	42,096 13
	\$1,979,360 18

DISBURSEMENTS.

Paid Claims by death on Policies and Bonus, and Payment of Annuities.....	\$400,181 75
Paid Expenses, salaries, Taxes, Revenue Stamps, Medical Examiners' Fees, Commissions, &c.....	257,725 32
Paid Dividends, Re-Insurance, Purchased Policies; and Bonus, Interest on Dividends, &c.....	295,697 00
	\$953,604 07

ASSETS.

Cash in Bank and on hand.....	\$53,016 07
Bond and Mortgages.....	880,255 00
Loans on Policies in force.....	1,709,428 42
[The actuarial estimates of the value of the Policies which secure these Notes is about \$2,101,500.]	
United States and New York State Stocks.....	719,753 20
Quarterly and Semi-annual Premiums deferred, and Premiums and Interest in course of collection and transmission.....	596,799 03
Temporary Loans on Stocks and Bonds.....	390,425 00
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Interest accrued to date and all other property.....	52,095 63
	\$4,391,773 45

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35	8,000	1,092	2,348	10,448
30	7,500	708	2,703	10,208
25	7,000	571	2,805	9,505

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 ASSETS, January 1st, 1868, - - - - - \$1,477,677 12

### Assets, January 1st, 1868.

|                                                                                                |                       |
|------------------------------------------------------------------------------------------------|-----------------------|
| Cash on hand and in Bank,.....                                                                 | \$ 96,412 95          |
| Cash in hands of Agents and in course of transmission,.....                                    | 172,544 10            |
| Bonds and Mortgages<br>(on property worth \$1,136,500 00),.....                                | 458,684 00            |
| United States, State and City Stocks, market value,...                                         | 379,675 00            |
| Call Loans on Government Collaterals,.....                                                     | 145,500 00            |
| Salvages, Accrued Interest, Re-Insurance Claims,<br>Bills receivable and Unpaid Premiums,..... | 9,2565 27             |
| All other Property,.....                                                                       | 132,295 80            |
|                                                                                                | <b>\$1,477,677 12</b> |
| Liabilities,.....                                                                              | \$100,626 71.         |

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JAMES W. ALEXANDER,

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172 BROADWAY, COR. OF MAIDEN LANE,

*New York, February 7, 1868.*

CASH CAPITAL - - - - - \$400,000

### ASSETS, February 1, 1868.

|                                                |              |
|------------------------------------------------|--------------|
| U. S. State and City Bonds (market value)..... | \$411,666 00 |
| Bonds and Mortgages.....                       | 86,945 50    |
| Demand Loans.....                              | 153,450 00   |
| Cash.....                                      | 56,077 99    |
| Unpaid Premiums.....                           | 12,793 79    |
| Miscellaneous.....                             | 45,238 20    |

\$766,171 48

### LIABILITIES

29,971 48

Capital and Net surplus - - - - - \$736,200 00

A DIVIDEND OF (6) SIX PER CENT. is this day declared, payable on demand, in CASH, to Stockholders.

ALSO, AN INTEREST DIVIDEND OF (6) SIX PER CENT. on outstanding Scrip, payable first of April in CASH.

ALSO, A SCRIP DIVIDEND OF (34) THIRTY-THREE AND ONE-THIRD PER CENT. on the earned premiums of Policies entitled to participate in the profits for the year ending 31st January, 1868.

The Scrip will be ready for delivery on and after the first of April next.

*The Scrip of 1862 will be redeemed on the First of April next, with interest, after which date the interest thereon will cease.*

**GEO. C. SATTERLEE, President.**

**HENRY WESTON, Vice-President.**

**WM. K. LOTHROP, Secretary.**

**WM. A. SCOTT, Assistant Secretary.**



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